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AUGUST 1991

NEW WAVE

MIS Strategy

- Hardware Options: Taking RISC Is No Gamble
- Choose The Right Financial Software For Your Business

SPECIAL REPORT:

- Network Systems

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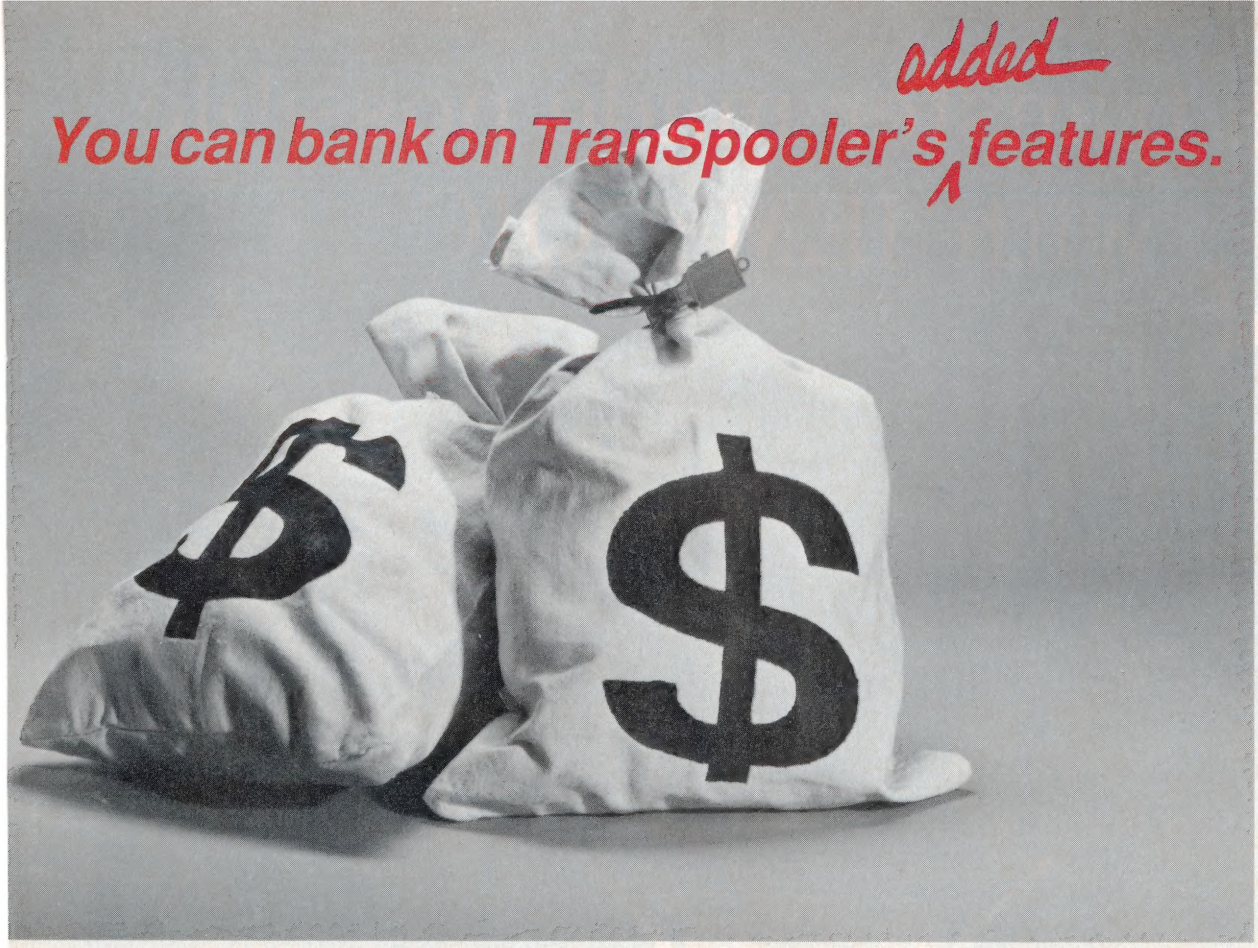

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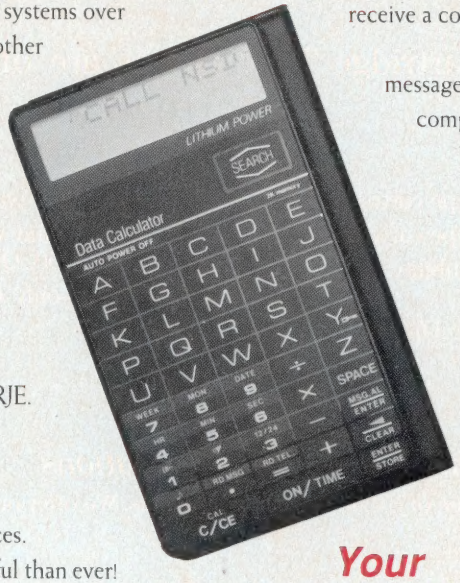

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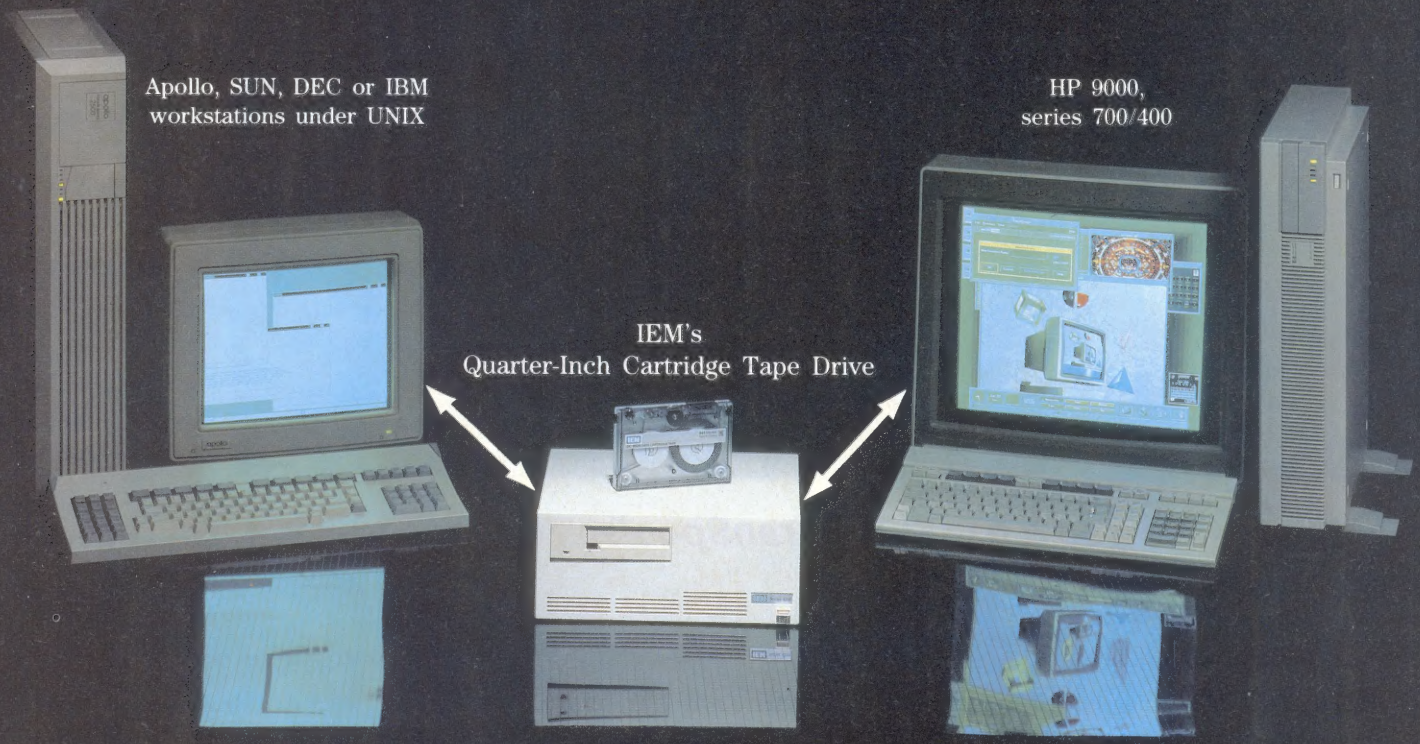

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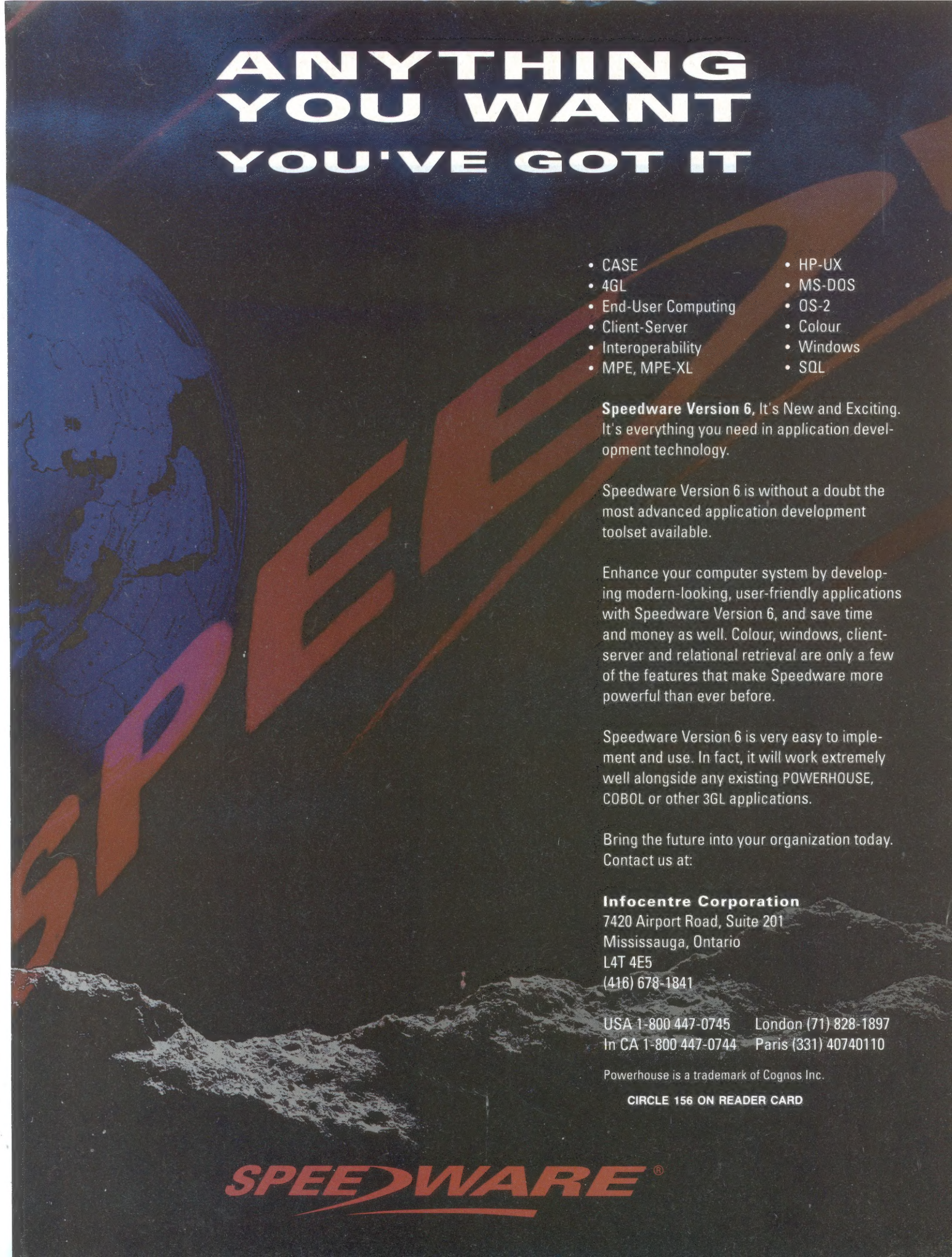

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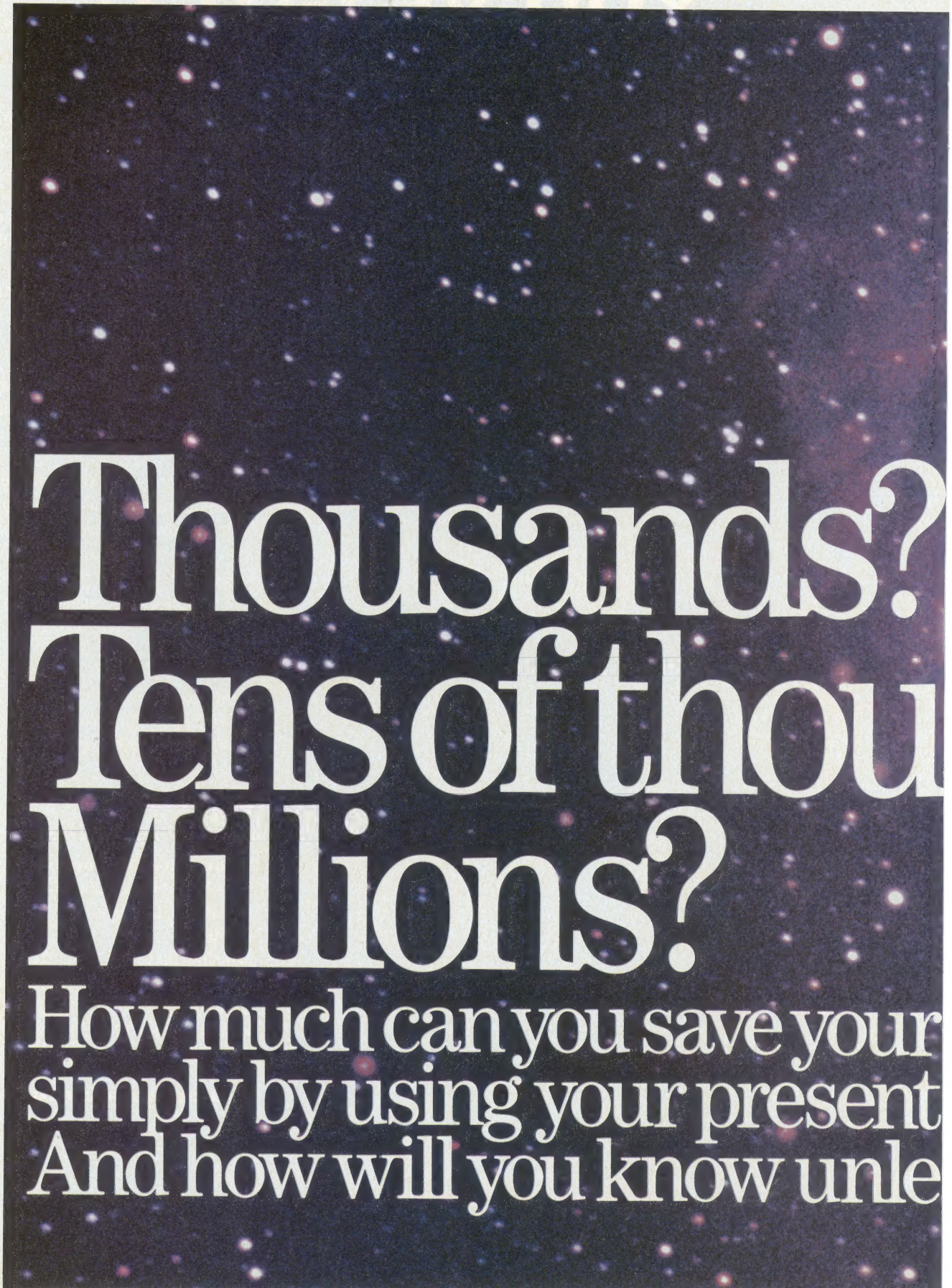
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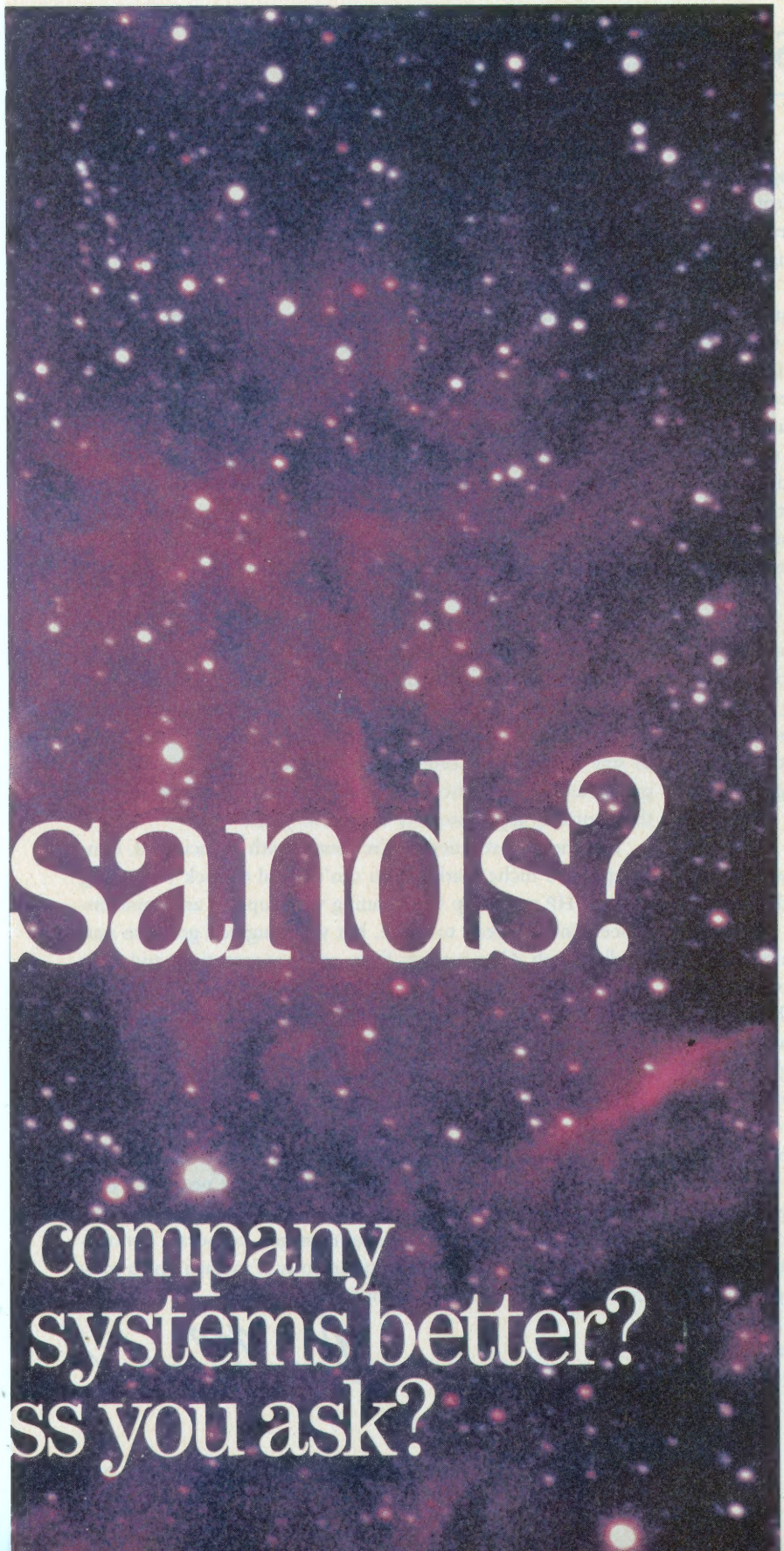

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Open Systems Rules

By Don Marks

In the computer business, the minute a company announces an exciting product or innovative strategy, a squadron of industry analysts immediately descends to expose its weaknesses and failings. Given that many major vendors are prone to introducing non-existent systems and distant futureware, you might think this isn't exactly a tragic state of affairs. In one sense, it's not. Users and prospective customers need an occasional squint through the jaundiced eyes of an industry hack. Without the skeptics, we'd probably be saluting whatever standard the MBAs elected to run up the flagpole this week.

In another sense, however, our predilection for skepticism makes us vulnerable to paralysis and inaction. For instance, many managers talk as though they don't believe computing has much promise left for business users. The way they see it, we're locked in a maintenance market with vendors churning out a lot of gimmickry that MIS doesn't really want and users don't really need. These folks' favorite argument runs something like this: If your business is getting along fine with its traditional data center system—be it a mainframe or minicomputer—why bother with all that UNIX and X Windows gobbledygook?

A Dangerous Complacency

At the risk of alienating my traditionalist friends, I would argue that clinging to the past, for whatever reason, is dangerous to the very livelihood of many companies. Although sales may have slowed during the present recession, HP's phenomenal success with UNIX systems and MPE XL machines (now positioned more clearly than ever as business servers) shows that many people, particularly in Europe and Asia, are still buying.

What these new corporate customers are buying into are open systems technologies that dramatically outperform systems purchased only a few years ago. The new systems offer improved connectivity and substantially enhanced client-server software applications. Incidentally, they also happen to be driven by visions of evolutionary progress toward the integrated information utility promised by NewWave Computing.

Why are new users buying this equipment and developing these enterprise-wide network environments? There is one simple answer, and it's a basic premise that should appeal to anyone in business: competitiveness. Even if U.S. users think they can drag their present centralized systems into the 21st century, it's clear from HP's sales statistics that many international businesses don't share that plan. They've seen the writing on the data center wall and handed more compute power in smaller packages to users that know how to get things done.

No Respite From RISC

Far from stalled, the pace of computing technology development hasn't slowed one mip. In fact, thanks primarily to RISC technology (see Ron Levine's article on page 34), hardware is careening through successive generations at breakneck speed. RISC, at which HP clearly excels, is at the beating heart of a cpu performance revolution that finally—after almost a decade of talk—makes distributed computing a reality.

This brings me to the core of what's wrong with the stick-with-what-you've-got approach. Thanks to RISC, falling prices and supercomputing performance levels have become a way of life. You can't afford to hide your head in the sand about this. From now on computer systems are going to become obsolete within two to three years of the time you buy them. Large-scale, enterprise-wide distributed environments are going to require constant infusions of hardware muscle and regular coats of networking, graphics and information management software to stay in fashion. Computing architectures, the overall integrated technology resources of a company, will turn over in their entirety approximately every five years.

This means that unless you're blessed with a specialized, non-competitive niche market, you can't afford to stick with aging systems. HP may keep you running with support and some enhancements for years to come, but your engine's going to start to idle rough. Competition from other corporations and from other countries isn't going to settle for obsolete technology. Many will play by the open systems rules and implement fast, powerful and cost-effective client-server networks that blow the doors off your old computing infrastructure.

The challenge for MIS and network managers is to educate their companies about the current state of data processing. It's crucial, or as the vendors prefer to say, "mission-critical," that you impress upon your company's leadership the need for a new approach to information management. Like it or not, that means educating your purchasing manager, corporate controller or chief financial officer as to the costs of maintaining a truly accessible and competitive information network.

Don Marks

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INDUSTRY WATCH

Bill Sharp

Midrange Mania

It's time to get serious again, folks. Time to put away the summer toys and grab those work tools. Naturally, the tools HP would like you to grab are the new second-generation PA-RISC 1.1 HP 3000 and HP 9000 systems. These are the computers built using the same chip set HP unveiled in the Series 700 workstations last spring.

This is a fun time for HP, spinning out new systems with seemingly effortless ease, bonking the competition over the head with speedy PA-RISC products every time DEC or IBM look like they might be catching a breath. Looks too doggone easy, too good to be true.

That means it's time for a reality check. Are these computing tools as good as they seem?

Should we allow HP to hammer mercilessly on us about the value of these products? Must we wrench ourselves loose from the visegrip of summer *ennui* to consider this? Are these PA-RISC 1.1 computers the best computing equipment we ever saw?

Ask Mr. Data

Folks, performance is undeniably real with these systems. We can question whether HP might have given themselves the benefit of a doubt in making measurements, but any errors that surface will likely be small ones. In head-on comparisons with IBM's AS/400 systems, HP 9000 Series 800 systems using the new chips performed three to six times better than similarly priced and configured IBM systems. Comparisons with IBM's RS/6000 systems show HP 9000 systems outgunning the competition by a lesser margin of 1.5 to 2.1. Against both IBM product families, HP shows the performance comparisons in three different price categories. HP has similar comparisons with DEC competing products, such as the DEC VAX 6500 and DEC VAX 3100 systems. All this is based on standard TPC benchmarks.

Can we be completely confident in these numbers? The best insurance is to wait a while after such data is announced and look for squawking from maligned competitors. HP's test data on these new systems was turned over to the Transaction Processing Council June 24. A month later, at the time of this writing, no vendor has yet disputed these claims.

But a note of caution comes from Carolyn Griffin, senior analyst for midrange systems with International Data Corp. (IDC; Framingham, MA). "We've had vendors come in and claim performance numbers and then have those numbers not verified in an audited report." So when asked specifically about performance, Griffin declines to comment unless data has been verified by professional auditors. HP says an audit isn't required by the TPC, only that the data be filed for comment by competitors.

With all the successes HP is piling up this year, expect to see still more software available soon.

Is The Software There?

When HP introduced its first PA-RISC products in 1986, they were roundly criticized for not having software ready to run on the systems. But the days of bringing out hot new hardware and letting the software folks scramble to make it all work are gone, long gone. Existing PA-RISC software for HP 3000 and HP 9000 systems will move over to the new gear without a hitch, promises HP. While the hardware has been dramatically improved, says spokesperson Melissa Calvo, the operating systems are "identical to the existing systems."

That means that the 3,500 applications available on PA-RISC systems can move on over to the new products and run. That includes database products such as HP's own TurboIMAGE and ALLBASE/SQL, as well as Informix, Sybase and Oracle databases designed for PA-RISC commercial systems. This is a big deal because large database applications are precisely the sort of thing these commercial systems are designed to do—and HP says the software is ready.

With all the successes HP is piling up this year, expect to see still more software available. That is welcome news, because HP still isn't king of the hill in terms of numbers of applications. HP's 3,500 applications must stand alongside DEC's claims of more than 6,000 on VAX systems, and IBM's 10,000 applications. Now these are surely numbers games just as performance figures can be, but do bear in mind that HP doesn't yet have it all.

Upgradably Yours

If you already have PA-RISC and feel left out by the new improved versions, don't be glum. HP has dropped its upgrade prices for existing systems by 20 to 40 percent to help you get in on the action. Most of the internals of existing systems can be pulled out and eased into a new

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chassis to preserve system investment and take advantage of the new chip set, says HP's Calvo reassuringly.

Along with the new midrange systems, HP announced new distribution channels to get more folks involved selling the hardware. Analysts such as IDC's Griffin cite HP's direct sales force as a problem. While the sales team has done a great job for many years, and indeed is legendary for its sales approach, it can't provide the appropriate pathway to purchasing for all customers. Of necessity, sales people must concentrate on customers that will give HP the highest return, which means large corporate customers. Medium and small companies fail to get the level of attention they deserve, and sales are lost.

The accepted way to reach medium to small customers is through distributors, even for midrange systems. HP has signed Canon Sales Co. (Tokyo, Japan) to help sell HP 3000 systems. It also has signed up Hall-mark Electronics Corp.(Dallas, TX); and Lex Electronics (Hauppauge, NY) to sell HP 9000 commercial systems. Expect more distribution moves from HP in the near future.

Sweet Smell Of Sales Success

A major worldwide hotel chain with 450 locations around the globe is in the process of installing new HP 9000 Series 800 systems in each of their locations, says Calvo. HP didn't have permission to disclose the firm's name at the time of this writing, but you will likely see it soon. Models 807 or 847 will be running in each of the hotels in the coming months, functioning as the brains of the outfit in each location.

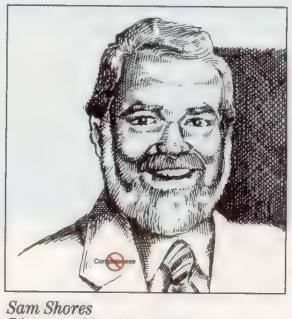
New sales showing up for HP are no accident. HP looks impressive these days, even to hardened industry analysts who are paid to be skeptical. IDC's Griffin says HP is clearly gaining market share in midrange systems, and credits HP's steady improvement in computing performance. "HP has historically improved its performance 50 to 100 percent per year. Last year they said they could maintain about 70 percent improvement per year. Some of their competition is closer to 50 percent per year.

"Customers all want to see the biggest bang for the buck," says Griffin, explaining HP's current success. But there are two ways to achieve price/performance. One is by increasing performance, and the other is by cutting prices. HP has greatly increased performance while reducing prices, thus applying lots of pressure to competitors. Griffin says to watch IBM, and predicts a midrange price war in the near future as the $65-billion computing giant moves from confusion to action, slashing prices in an effort to compete with fast-moving HP during this year's midrange mania. ■

"Before UDMS, I Couldn't Show My Face In The Lunchroom."

UDMS:ReportWriter™ to the Rescue.

UDMS™ provides the perfect balance of power, connectivity and ease-of-use for the systems professional and the enduser.



"UDMS offers me the best report writing capabilities: I have PC ease-of-use, 4GL power and 3GL performance. My users tell me that information access is not only productive but enjoyable. We both can access all of our data, regardless of the underlying data structure. Since I chose UDMS, now I even get *invited* to lunch."

Sam Shores
Director of Business Systems
Digital Communications Associates

UDMS offers window-based report writing and much more. You can build forms, download to PC's, integrate applications, or simultaneously update all supported databases like TurboIMAGE™, KSAM, ALLBASE™, INGRES®, and others.

Both HP MPE/XL™ and HP-UX™ versions are available.

Find out why two of the largest HP Application Vendors have switched to UDMS.
Call 1-800-275-UDMS Today for a Free remote demonstration.

INTERACTIVE SOFTWARE

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CIRCLE 214 ON READER CARD

ME10/ME30 Productivity Tools

Three new ME10/ME30 Add-on Utilities to Plot, Print, and View MI-format drawings more conveniently than ever before...

"PlotMI products are saving our CAD operators countless hours in plotting time... PlotMIView has allowed us to bring MI drawings to any PC. This is an extremely cost effective way to view drawings. PlotMIView is very beneficial when working at a remote site with laptop type computers."

-- Mark Rossi, Food Engineering Corp.

PlotMI™ prepares HP Model Interface (MI) files for plotting on HPGL compatible output devices without having to load ME10 or ME30:

- A single copy of PlotMI can serve the plotting needs of an entire site
- Supports all drawing features provided by ME10/ME30 software
- PlotMI runs *in the background*, does not tie up a workstation while plotting
- Provides advanced control over drawing content and page layout
- Layout multiple drawings on a single output page
- Plotting can be performed from any workstation or ASCII terminal
- Can batch process multiple drawings with a single command
- Works with the ME10 spooler and the lp spooler
- Produces long axis plots
- Customizable to use your plotter's special features
- Uses your own fonts as well as those supplied with ME10/ME30

"PlotMI and PlotMIUtil are the key to our engineering drawing reprint system. This software works, it works fast, and is easy to implement!"

-- Karl Eliason, H-C Industries

PlotMIUtil™ prints ME10/ME30 MI files on any model HP LaserJet, PaintJet, and DeskJet printers, or on a Postscript-capable printer:

- A single copy of PlotMIUtil can serve the printing needs of an entire site
- Runs stand-alone, or seamlessly integrates into any PlotMI script, HP-UX shell script, or lp spooler script
- Compresses all output data for faster downloading and printing
- Prints drawings faster than pen plotters
- Drawings may be printed on A or B size media (LaserJet 2000, PaintJet XL and Postscript capable printers support the larger media size)
- Offers extensive user control over line style, pen color and pen width

"The Drafting department uses PlotMI and PlotMIUtil extensively to produce rapid A-size check plots on a LaserJet. This saves time and money because the plot is generated in the background, allowing our draftsmen to continue working, and the output is sent to an unattended device using cheap bond paper. PlotMIView provides our Quality Control inspectors with instant access to these latest drawings."

-- Richard Barnes, M/A-Com, Inc.

PlotMIView™ displays ME10/ME30 MI files on the VGA, EGA, or CGA display of a personal computer, or on the graphic display of an HP 9000 Series workstation:

- Single keystrokes allow navigation, zooming, and panning
- Pan and zoom controls for observing finer drawing details
- WYSIWYG: drawings appear on the display exactly as they would if plotted on paper by PlotMI
- Extremely fast display
- Low cost PC hardware may be used for view-only work
- Runs on any PC compatible, and laptops for portable *in-the-field* viewing
- Supports a virtual memory feature for viewing extremely large drawings
- Custom batch files which allow seamless integration with networks automatically retrieve drawings from a central server for PC viewing
- Single keystrokes can trigger hardcopy plotting, by PlotMI, on local or remote printers and plotters

DAAI products are sold with a 30-day money-back guarantee and free, unlimited technical support by phone or fax. Call, write, or FAX today for detailed product information, price list, and details on bundling and volume discounts.

DAAI

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HEWLETT PACKARD User Referenced Solution

CIRCLE 461 ON READER CARD

HP Announces Network Advisor

Troubleshooting Tools Now Available For Token-Ring And Ethernet Networks

HP introduced a new approach to network troubleshooting with a family of network testing products called network advisors.

These new products are the HP 4980A combination Ethernet/Token-Ring, HP 4981A Ethernet, and HP 4982A Token-Ring network advisors.

The HP network advisors were developed from studying the needs of private network managers and how they have used available troubleshooting tools. Today's protocol analyzers require the private network manager to have considerable expertise in networks and communications protocols. The protocol analyzer user must capture and filter large amounts of network traffic and then sift through protocol traces looking for clues leading to the solution of a problem. By contrast, the HP network advisors make private network managers more effective in managing their networks through the use of expert systems technology.

The HP network advisors' fault finder measurement is an expert systems-based troubleshooting interface that allows the user to focus on the symptoms of network problems rather than relying on interpretation of protocol traffic. In practice, the user inputs a symptom of a network problem such as "poor response time" and then activates fault finder. Fault finder takes it from there by running simultaneous measurements on the network to narrow down and then pinpoint the source of the problem. While fault finder is running it displays intermediate results in windows. This keeps the user informed of its progress and aware of its methodology.

GE Computer Service Extends Black River Support

National Agreement Offers HP Users New Maintenance Source

At the NECRUG users conference in Atlantic City, NJ, Black River Computers (Elyria, OH) a supplier of reconditioned HP computers, hardware and test equipment, announced a cooperative effort with GE Computer Service to offer third-party maintenance for HP and multiplatform customers.

The national agreement specifies that Black River will provide the technical support, training, inventory, parts and supplies for selected HP 3000 and 9000 Series hardware. GE will provide customized service including installation, upgrades, testing and analysis, T/M repairs and maintenance contracts.

"This service provides a viable alternative for HP 3000 users," says Black River's Bill McChesney director of technical services, "and it opens the third-party market for companies like IEM and Kelly. HP system managers now can incorporate third-party hardware into their networks and continue to get service for the entire system."

Black River decided to pursue a relationship with a national third-party service group to provide service for customers implementing multivendor solutions for their networking problems.

GE Computer Service provides customized service for multivendor systems, including DEC IBM, Sun and Prime. The company offers a toll-free, 24-hour, seven day-per-week response center. — *Andrea Zavod, Assistant Editor*

Contact Black River Computers, 143 Yorkshire, Elyria, OH 44035; (216) 365-9950.

Circle 361 on reader card

This New Payroll System Is One Of The Most Powerful Management Tools Ever Created For HP Computers.

In the software world, there are upgrades. And there are enhancements. But neither one comes close to describing the new World Class Series™ Payroll System from Collier-Jackson.

This is positively the new standard by which all payroll management software will be measured.

In a world of accelerating change, this payroll package is definitely up to speed. For starters, it's the most flexible and comprehensive payroll system available for Hewlett-Packard equipment. Next, it features an amazing new screen management system that finally delivers true PC look, feel and adaptability.

We didn't stop there. Our new Payroll System also incorporates World Class Series EIS – our powerful Executive Information System. It actually lets you pull out the summarized data you specify, quickly and easily, for analysis on your PC or laptop.

EIS lets you drill down through layers and layers of detail. Compare today to yesterday. Plan for tomorrow.

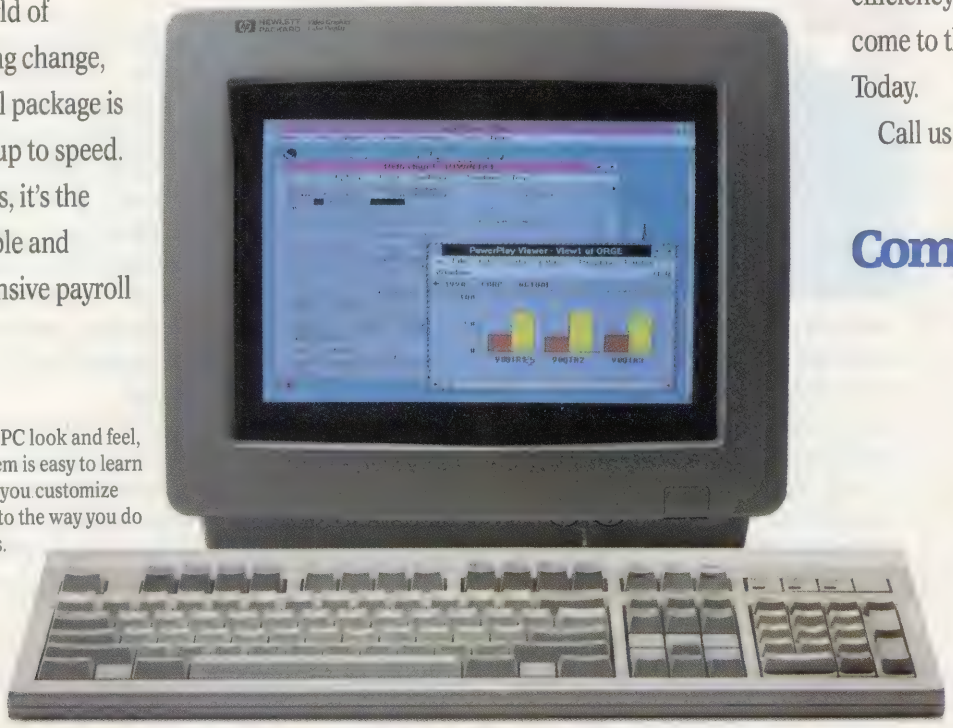
Brilliant as a stand-alone, but our new Payroll System also integrates beautifully with our entire family of World Class Series Accounting and Human Resource software.

World Class Series performance puts time on your side, with increased productivity, efficiency, effectiveness.

If you need a payroll system to just cut checks and keep track of taxes, talk to our competition. But if you're looking for a powerful management tool that will increase your company's productivity, efficiency and effectiveness, you've come to the right place. It's here. Today.

Call us now at 813-872-9990.

CompuServe®
Collier-Jackson



With its PC look and feel, the system is easy to learn and lets you customize screens to the way you do business.

HEWLETT PACKARD
Premier Solution Provider

CIRCLE 111 ON READER CARD

World Class Series is a trademark of CompuServe/Collier-Jackson.

HP, Interleaf Pursue Seamless Integration Of Applications

Electronic Publishing System To Be Integrated In HP's SoftBench CASE Environment

Interleaf Inc. announced that it will integrate its electronic publishing system with HP's SoftBench, a software development environment. SoftBench provides an integrated set of program development tools combined with a tool integration platform that offers support for heterogeneous networks and allows disparate software tools, including other applications, to communicate with one another.

The integration of Interleaf into the SoftBench framework allows users to create and edit Interleaf documents directly from other software applications, saving time and enhancing quality in the documentation process. In addition, Interleaf's active documents offer a high level of automation in this process. An active document may be programmed so that the Interleaf system automatically retrieves data from the CASE repository and assembles a document that complies with DoD-STD-2167A, a government standard for software documentation.

Contact Interleaf Inc., Prospect Place, 9 Hillside Ave., Waltham, MA 02154; (617) 290-0710.

Circle 365 on reader card

Vantage Tech. Provides Data And Disaster Recovery

Precision Methods Customers Now Have 24-Hour Support

Vantage Technologies Inc. and Precision Methods Inc. announced an agreement under which Vantage Technologies will provide data recovery services and disaster recovery support to Precision Methods media maintenance and product customers nationwide.

Vantage Technologies will provide comprehensive media restoration and data retrieval services for Precision Methods customers that have experienced a loss of data and are in need of data recovery services. Services will be available 24 hours a day, seven days per week.

Contact Vantage Technologies Inc., Medallion Center, Ste. 2B, Greeley St., P.O. Box 1570, Merrimack, NH 03054; (603) 429-9544.

Circle 367 on reader card

Control Associates Debuts Open Systems Architecture

Fisher Controls International And HP Unveil Process Industry Solution Center

Fisher Controls International and HP opened the Process Industry (P.I.) Solution Center in the facilities of Control Associates, Fisher Controls' regional sales affiliate in Tenafly, NJ.

The Process Industry Solution Center is a meeting and demonstration facility developed around the operations of a simulated chemicals manufacturer, Mighty Fine Chemical Co.

The demonstration area includes HP 9000 computer systems, X terminals, high-speed printers, and a Fisher PROVOX distributed control systems (DCS) interface to the HP 9000 network using Fishers' CHIP/UX (Computer Highway Interface Program/HP-UX) technology.

The reconfiguration of the P.I. Solution Center reflects the shift to open systems for information processing at major process companies. Such systems are being linked to plant distributed control systems for true enterprise-wide integration. A component of the P.I. Solution Center is the consulting expertise available through Control Associates' and HP's consultants. HP has offices in Paramus, Piscataway and Parsippany, NJ.

Allen-Bradley, HP Alliance Brings Network DTL HP-UX

Joint Development Agreement Includes Seamless Support For Customers

Allen-Bradley Co. and HP joined forces to offer customers high-performance, tightly integrated manufacturing solutions.

Allen-Bradley and HP are cooperating jointly on solutions-oriented product development, sales and marketing, system engineering and worldwide support.

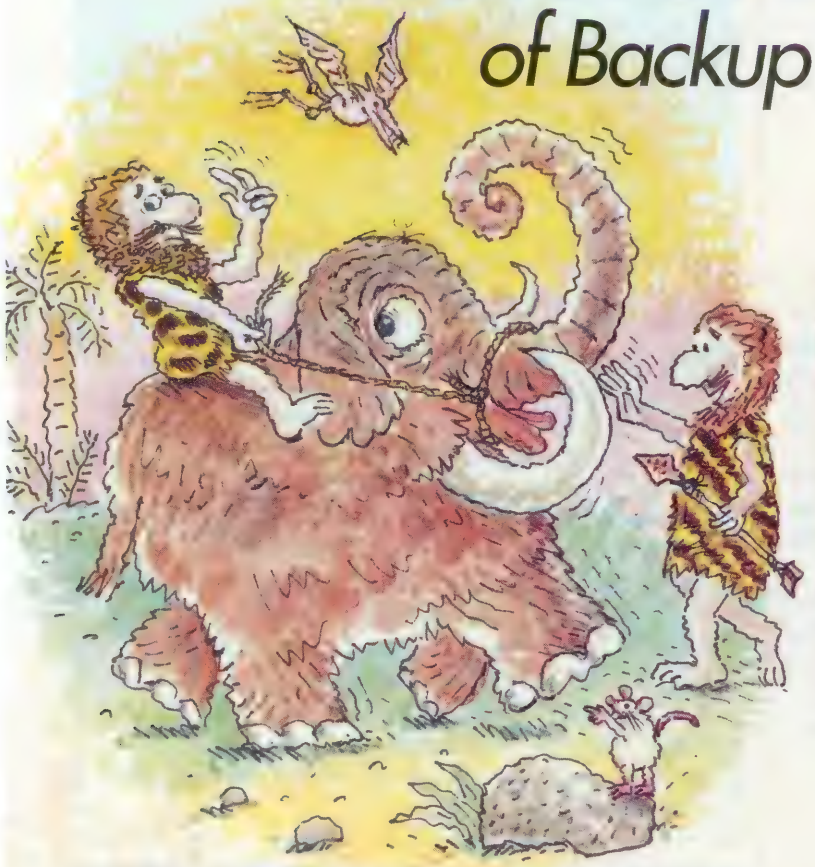
The first jointly developed product, Network DTL (Data Table Library) HP-UX, provides a seamless interface between the Allen-Bradley Pyramid Integrator control and information platform and HP 9000 Series.

Throughput over the Network DTL Ethernet client-server interface is about 50 times greater than traditional RS-232 to Allen-Bradley Data Highway connections.

Future plans include the addition of high-speed, high-volume links between the companies' architectures and for programming software offerings.

The companies also are offering a "seamless" support service. Customers will be able to make one phone call to either Allen-Bradley or HP to initiate a response from support engineers.

Natural Evolution
of Backup Solutions



Eeeeek! Trying to backup a mammoth database used to be a task of historic proportions.

Now, Bering's ECHO easily preserves up to 5GB of jumbo projects on a tiny, mouse-size cartridge.

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NOW up to 5GB

- High capacity – up to 5GB on one small, economical tape cartridge
- HP streaming and cartridge tape emulation
- MPE-XL, MPE-V, HP-UX and other operating systems support
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- Built-in real-time clock for automatic, unattended backups
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ECHO 4900 Series
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CIRCLE 105 ON READER CARD

SQL Access Demonstrates Multivendor Database Interoperability

Published Specifications And New Corporate Members Also Are Announced

The SQL Access Group, a consortium of database software and hardware companies, demonstrated for the first time in the industry multivendor database interoperability, showing a prototype of the Phase I technical specification.

Phase I, published by X/Open Consortium Ltd., provided a preliminary look at the technology.

The interoperability demonstration showed tools from different vendors talking to a number of other vendor's databases in a simulated real-world environment where multiple clients and servers will exchange information.

Also, seven new companies have joined the association bringing the membership to 40.

Contact SQL Access Group, 4699 Old Ironsides Dr., Ste. 450, Santa Clara, CA 95054; (408) 988-3545.

Circle 366 on reader card

HP Provides Microsoft With Worldwide Support

Microsoft LAN Manager To Replace HP Version

HP and Microsoft Corp. signed an agreement authorizing HP to provide worldwide support for Microsoft LAN Manager, Microsoft Windows Version 3.0, the MS-DOS and OS/2 operating systems and Microsoft SQL server.

In a related development, HP no longer will supply its own version of HP LAN Manager for OS/2 beyond the current release, HP LAN Manager 1.1. HP only recently began shipping HP LAN Manager 1.1, which includes support for Microsoft Windows, Version 3.0.

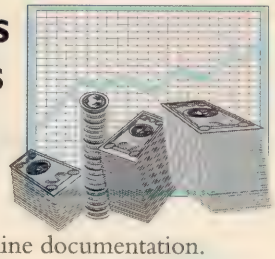
Microsoft will incorporate support for TCP/IP and Advanced Research Projects Agency (ARPA) networking services with a future version of Microsoft LAN Manager. This will afford HP LAN Manager customers a simple smooth migration path to Microsoft LAN Manager. In addition, Microsoft will provide an upgrade program for HP customers.

HP's authorized status gives HP direct access to the wide range of Microsoft's technical resources including Knowledge Base, an electronic support database that's accessible through OnLine for Windows.

For Your Information

- Cadre Technologies announced support of its Teamwork family of CASE products on HP's new 9000 Series 700 workstations and servers. (401) 351-5950.
- UNITECH Software is now a part of Systems Center Inc., a developer and marketer of systems and network management software and will now be known as Systems Center, UNITECH Software Division. (703) 264-8000.
- Crisis Computer Corp. reduced prices 25 percent for repair and 38 percent for exchanges on HP LaserJet I/F controllers. (800) 729-0729.
- HP introduced HP Capacity Planning service for HP 9000 Series 800 system environments running HP-UX. This service combines the expertise of HP performance consultants with HP's analytic modeling software and proprietary performance measurement tools.
- Saber Software Inc. announced a marketing and product integration agreement with Integrated Computer Solutions Inc (ICS). The two companies will jointly market Saber's Saber-C programming environment and ICS' Builder Xcessory, a graphical tool for the creation of OSF/Motif-based user interfaces on X Windows. (617) 876-7636.
- R Squared will now carry products compatible with HP Apollo platforms. The company will handle disk drives, tape drives, optical drives and memory for HP Apollo platforms. (303) 799-9292.

GTE Telops Chooses HP 9000/400 Series



$40 Million Order Builds Customer Service Network

HP received a $40 million order to provide HP Apollo 9000 Series 400 workstations to GTE Telephone Operations (Telops) for use by telephone customer-service representatives.

GTE Telops installed a network of more than 3,500 HP Apollo 9000 Model 425e workstations and Model 433s servers to improve customer-service productivity.

GTE's client-server computing environment will help customer-service representatives quickly access multiple database containing records, customer information and online documentation.

HP's solution gives customer-service representatives an easy-to-use graphical environment—the OSF/Motif-based HP Visual User Environment (HP VUE)—on the desktop. With HP VUE, representatives can call up and manipulate multiple windows of information and documentation.

The contract will cover Series 400 workstation hardware and related software, support and peripheral products during an implementation period of two years.

THE ONLY TAPE DRIVE THAT PUTS 25GB ON A SINGLE 8MM TAPE.

Do you wish you could find a backup system with enough capacity, speed, and sophistication to backup unattended?

Could you recreate a document from scratch in the time it takes you to restore it?

FAST BACKUP, FAST RESTORE.

Introducing the CY-8500, the 8mm tape drive that gives you up to 25 GB on a single tape. And with transfer rates of up to 90 MB per minute, backup takes less time, frees resources, and makes frequent backup simple and convenient.

And that's not all. The CY-8500 offers fast file search capability. So you get the advantages of high capacity and fast transfer rates plus the ability to locate and restore your files quickly – about 75 times faster than normal speed.

TRUE "PLUG-AND-PLAY" COMPATIBILITY WITH:

Alliant	DEC Unibus	PC 386/ix
Alpha Micro	Gould	PC MS-DOS
Altos	HP	PC
Apollo	IBM AS/400	Xenix/Unix
Arix	IBM Mainframe	Pertec
AT&T	IBM RISC/6000	Plexus
Basic-4	IBM RT	Prime
Concurrent	IBM S/38	Pyramid
Convergent	Macintosh	Sequent
DataGeneral	McDonnell Douglas	Silicon Graphics
DEC 3100	NCR	Sun
DEC BI-Bus	Novell	Unisys
DEC HSC	OS/2	Wang
DEC Q-Bus	PS/2	*and more*
DEC TU/TA81		

CONFIGURATION FLEXIBILITY.

The state-of-the-art liquid crystal display gives you complete drive status information. Command under execution, transfer rate, tape remaining, and ECC are presented in a clear easy-to-read format. By offering such features as data compression – for five times the storage capacity per tape – and data encryption – giving you data access control – the CY-8500 adapts to your company's growing needs. We'll adapt to your site requirements too, with rack mounting options and cable lengths of up to 80 feet.

PROVEN TECHNOLOGY.

Best of all, the CY-8500 offers peace of mind. 8mm helical scan technology, designed for data recording, gives you demonstrated performance and reliability. Not an adaptation of an audio recording format.

The CY-8500 is part of a complete family of tape backup products that range in capacity from the 150 MB ¼" cartridge streamer to the 2 TB cartridge handling system. All backed up by our in-house technical support group and 12-month warranty. For more information on how you can enjoy the best value in tape backup, call today at 804/873-0900.

CONTEMPORARY CYBERNETICS Group

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CIRCLE 112 ON READER CARD

International Insights

Frame Technology Establishes European Headquarters

Frame, Matsushita Debut Japanese FrameMaker

Frame Technology announced the conclusion of negotiations with the Industrial Development Authority of Ireland (IDA) to establish a European support center in Dublin, Ireland.

Called the European Operations Centre, the Dublin operation will support Frame's European distribution network by manufacturing and distributing localized (market-specific and translated) versions of the company's products. The Dublin operation will work in concert with Frame's marketing and sales support staff to further expand the company's presence.

In other news, Frame Technology Corp. and Matsushita Computer Systems announced that Japanese FrameMaker 1.0 is now available. Japanese FrameMaker is a Japanese-language version of FrameMaker 2.1, the leading UNIX-based workstation publishing software systems in the U.S. and Europe.

Japanese FrameMaker lets users create, edit and revise a range of business and technical documents that include both Japanese and Western languages using a Japanese-language user interface.

Japanese FrameMaker adds Japanese-specific publishing capabilities such as support for a front-end processor (FEP) to allow both Hiragana (phonetic Japanese characters) and Kanji (Japanese characters derived from Chinese) input from a western-style keyboard; Japanese text composition and hyphenation rules; unique mixed Japanese and Western-language text handling features that provide easy keyboard transitions between different languages and fonts; and more.

Japanese FrameMaker is priced at $4,300 for a single floating license.

Contact Frame Technology, 1010 Rincon Cir., San Jose, CA 95131; (408) 433-3311.

Circle 364 on reader card

HP Pursues DAT Market

Japan-Based Manufacturer Supplies 3 1/2-Inch DAT Mechanisms

HP and Mitsumi Electric Company (Tokyo, Japan) signed a contract that will give HP an exclusive supply of 3 1/2-inch DAT mechanisms for HP's 2- and 8-GB DAT drives.

HP chose Mitsumi for its expertise with 5 1/4-inch DAT mechanisms and for its experience in high-volume manufacturing. Mitsumi designed the mechanism to HP's specifications and under the agreement, HP retains long-term control of the product design.

The DAT mechanism incorporates several design features including an electronic tension servo that lets the drive maintain active DDS tape tension control, a simple lead mechanism and a true height of 1 inch. It provides customers with improved data integrity and reliability.

Full-scale production of HP's 3-1/2 inch DAT drive began in May.

Looking Glass Distributed To Pacific Rim

Visix Signs Translation And Distribution Agreements With SRA, GSW

Visix Software Inc. signed marketing agreements with Software Research Associates Inc. (SRA) of Japan and GoldStar Software (GSW) of Korea.

According to the agreement, SRA will localize Looking Glass for the Japanese market and port the product to most major Japanese UNIX platforms. SRA also will integrate Looking Glass into their workstation-based system and offer engineering support. In addition, SRA will package, market and distribute Looking Glass in the Japanese market.

GSW will localize, market and distribute Looking Glass in the Korean market. GSW also will bundle Looking Glass on its SPARC clone and Intel-based system.

Contact Visix Software Inc., 11440 Commerce Park Dr., Reston, VA 22091; (703) 758-8230.

Circle 363 on reader card

Brant Markets MiniSoft 92 In Border States

Mississauga Staff Supports OH, PA, MI, NY

Brant Technologies, a distributor for MiniSoft Inc. in Canada is expanding its sales responsibilities for the MiniSoft 92 terminal emulation software into the northeastern U.S.

MiniSoft 92 is a terminal emulation and data communications package for the HP 3000, 1000 and 9000. Price is $129 and it is available for DOS and Windows.

Sales and support for MiniSoft 92 in Ohio, Michigan, Pennsylvania and New York will be handled by Brant out of the Mississauga office. Brant also has implemented a toll-free phone-in/fax-in service in order to facilitate order processing and technical support.

Finally. True on-line reporting is a reality.

With your existing report writer!

Even the best report writers are poor on-line inquiry tools. Why? Because finding a subset of records for reporting usually requires time-consuming scans of the database. The result: long delays before the report completes and degraded system performance for all users.

Reports in seconds rather than minutes or hours.

OmniQuest integrates the incredibly fast selection speed of OMNIDEX into your existing reports, with no dictionary changes. It works with:

- *QUIZ*
- *BRW*
- *QTP*
- *Query*
- *Inquizitive*
- *Any report program that does a serial read*

The results can be astounding:

- *Di'Arrigo Brothers has reduced a sales summary report from 10 minutes to 7 seconds*
- *Connecticut Business and Industrial Association reduced their 8,000 mailing label run from overnight to 15 minutes*
- *OmniQuest on a Gerber Alley hospital application reduced the daily admissions report from 30 minutes to 21 seconds*

If you have reports that scan a large amount of data to select a smaller subset of records, you can expect performance gains of 1000% or more.

DISC

Dynamic Information Systems Corporation
5733 Central Avenue
Boulder, Colorado 80301
(303) 444-4000

Order now and receive up to $2,000 credit

As an introductory offer, we're providing up to $2,000 to be used toward the purchase of OmniQuest if ordered before September 30, 1991. Call us at (303) 444-4000 to order your trial or request more information.*

**Discounts are calculated based on machine class, and range from $600 to $2,000.*

CIRCLE 113 ON READER CARD

It's A SNAP!

Software A&E's CASE Tool Gives You A Head Start On Software Development

When your blueprint includes open systems building blocks like UNIX, C, X Windows, MOTIF and SQL you've got a solid foundation for a distributed environment.

And workstations, because of their windowing and graphical capabilities, are fast becoming the preferred hardware both as servers and front-ends for networked environments. They also allow you to maintain remote facilities without the complication of gateways and controllers.

Developing open systems software applications for these types of environments requires easy portability across multiple platforms. But, tradition has it that these applications are custom developed from the ground up.

Software A&E (Herndon, VA) takes a different approach to software development where building an application can be as easy as filling in a name and address on a standard form letter. The Strategic Networked Applications Program (SNAP) is a software template that aids software development for workstation-based applications in a distributed environment.

The template consists of five prebuilt software components that make up 90 percent of any application. Applications are completed by filling in the template customizing the prefabricated code to your information needs.

Because the template can be reused and modified to accommodate system or application specifications, it is useful in mission-critical applications such as airline operations control and communications network management.

The central component of a distributed application is the object-oriented data mode that manages all the application data. It also serves as the medium for all other components to interact with each other. Each component has access to the data and can update it at anytime.

SNAP's graphical user interface component provides the software that creates the graphic elements such as tables, charts and graphs. Data is accessed from the data model to display the information specific to the application invoked. The windows are dynamic allowing data to be changed at any time. The end-user software is built on X Windows and Motif and is portable across other similarly supported platforms.

Using workstations as the servers for remote sites, requires access data both from local storage and from other parts of the network. The permanent access storage component provides the software to map in-memory object-oriented data structures of the data model into relational databases (SQL standard) or flat files. It provides for storing, retrieving and updating application data between the in-memory data structures and the permanent storage.

The SNAP template is comprised of 225,000 lines of C programming code and the application processing component provides the software that allows you to integrate any existing code developed in a third generation language that can be linked with C.

The final component is communications software that provides for interprocess communication (IPC) among SNAP applications. The components are built on both UDP and TCP/IP and make communication possible for applications running on a single workstation, LAN or multiple workstations.

The SNAP template starts at $28,000 and operates on workstations from HP, DEC, IBM, Sun, Sequent and DG Aviion and Unisys. —*Andrea J. Zavod, Assistant Editor*

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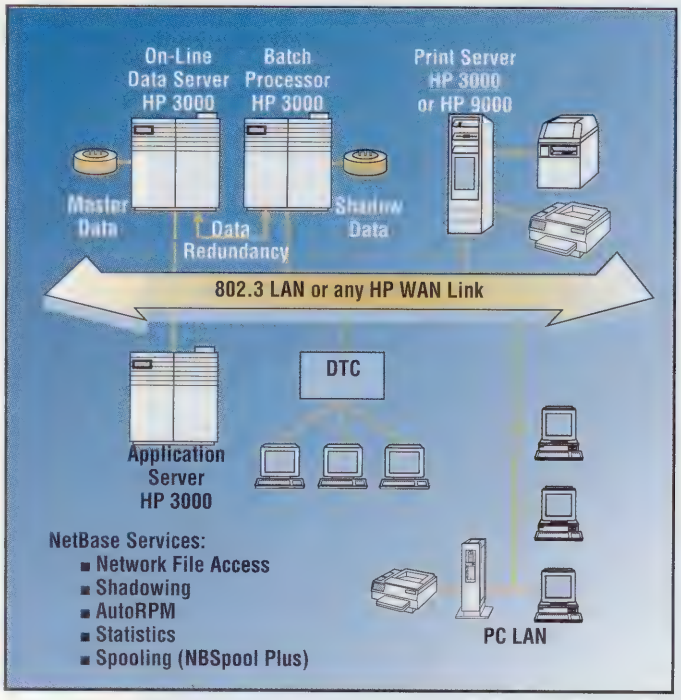
Structured Growth



Quest Software's NetBase Makes Multiple HP 3000s Look Like One

A healthy, growing HP 3000 computing environment can evolve to a point where some very real problems arise.

If growth is directing you toward networking two or more HP 3000s, the costs you stand to incur could be substantial. To minimize the expense and the aggravation, you'll want to make the transition to networked systems as easy as possible for your application programmers and MIS staff.

NetBase by QUEST Software (Newport Beach, CA) offers several ways to keep your network growing pains under control. NetBase is an application software system that lets you link the computing power of multiple HP 3000 computers without sacrificing significant performance and without undertaking a large software rewrite project.

With NetBase, your new hardware becomes part of a networked system that performs as one large computer. Application programs and 4GLs access files and databases across a network without knowing where the files reside or how to access them.

NetBase Components

The individual components of NetBase are Network File Access, Network Spooling, Shadowing, Statistics and Automatic Remote Process Management.

Network File Access is the ability to locate IMAGE databases, KSAM files or other MPE files anywhere in your network without application changes. This means instant redirection of files across a network and wildcard redirection of entire groups and accounts.

NetBase's Network Spooling provides access to all spooled printers in the network. NBSpool, which is a part of NetBase's Network Spooling, works with mixed MPE V and MPE XL environments. It offers extended banner and report distribution capabilities, Novell NetWare integration and high speed move/copy across machines.

NetBase also features automatic archiving to disk or tape, the ability to save streamed jobs across shutdowns and fast string searches against multiple spool files.

NetBase Shadowing keeps concurrent copies of databases and files on multiple computers in the network. This allows a production machine to stay online at all times because backup copies are maintained automatically on another computer. It doesn't rely on IMAGE logging and doesn't incur the overhead logging typically requires.

NetBase Statistics shows network and local application performance to aid in application tuning and network load balancing. Application activity is tracked to determine the most effective location in the network for both users and files.

Automatic Remote Process Management (AutoRPM) automatically executes programs on other computers without needing any UDC, job or application changes. With a NetBase directory command, any program can be executed anywhere in the network.

The NetBase Basic Package is priced from $9,600 to $40,320 depending on CPU. *—George T. Frueh, Technical Editor*

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FINANCIAL

MITCHELL KLEIMAN

Choosing The Right Financial System For Your Company May Not Make You Rich, But It Could Improve Your Career

One of the most critical information decisions for any company is the purchase of a new financial software system. Because financial systems provide information and services necessary to conduct business, your choice of financial software can have a far ranging impact. Disruptions in your accounting system, such as the inability to provide crucial analysis in a timely fashion, can have a serious business impact and lead to poor decision making.

The purchase of a new financial system often involves a hardware purchase or upgrade, as well. This adds a layer of complexity to the decision: In addition to reviewing the available software applications, you also need to evaluate various software and hardware combinations. Financial managers are typically concerned with several performance related issues:

- Processing speed. (How long will my daily check run take?)
- Turnaround time. (From the time of submission, how long will it take to get the end of month reports run and printed?)
- Availability of computer resources. (Will the processor be available when I need it? Who else will be using the hardware? How much CPU time do they use? When do they need access? Will they have priority over me?)
- Reliability of the hardware. (How often will I miss my monthly or quarterly close deadline because of computer downtime?)

Unless you've been through many selection projects, you're outgunned by the vendor salespeople. They usually have many

SUCCESS

years of experience with system selections, and they're certain they have the product you need. Unfortunately, selection projects usually are conducted under a time crunch with deadlines, and this is the real hook for the salespeople—they know you're looking to buy. Depending on your circumstances, dealing with a savvy salesperson can be a problem or a challenge. In rare cases, you can use their expertise to your advantage.

The successful selection of a financial system often involves a considerable investment on the part of the company—a conversion effort, education and retraining of personnel and sometimes a re-engineering of internal procedures. Given the size of the investment, the number of people impacted, time constraints, personnel constraints, and the chance that something will go wrong along the way, these high visibility system selections often impact, for good or ill, the careers of MIS and financial managers.

Removing The Guesswork

FIRST, YOU MUST RECOGNIZE that system selection is a process and it involves many decisions along the way. It's the process that lays the foundation for all the steps that follow—installation of hardware and software, software configuration, data conversion, customization, testing, training, and finally transition to the new system. A strong foundation improves the likelihood that the whole project will succeed, that the goals will be achieved (criteria, schedule and budget), and the company will benefit from the system.

The system selection process itself is typically conducted in three distinct subprocesses, requirements definition, request for proposal, and evaluation of proposals and selection. Each of these subprocesses requires planning and management, and the successful accomplishment of each prepares a manager or selection committee for the next step by providing the necessary information for analysis and decision making.

The first subprocess is the requirements definition. The aim of this process is to examine and document what is needed from the system. If there's more than one application involved, then the requirements for each should be defined separately before common requirements (e.g., hardware, software interfaces, disk storage and response times) are listed.

The key to a successful requirements definition is involvement of future users and supervisors of this system, along with the MIS personnel, in a team effort. Together these groups can compile the information necessary to intelligently evaluate alternatives and define performance criteria. As the requirements are defined, each must be weighed and its importance noted. A typical approach is to include a column assessing the need for each feature listed (e.g., must, desired, wish list) and a weighing of factors on some scale (e.g., 1-10, A-D).

In addition to the actual system specifications, there are some basic details about your company you will want to include in your requirements definition. Before you contact a vendor, you

In a few short months, conditions can change dramatically enough to require different selection criteria and a different solution.

should prepare a company profile (background information, size, geographic locations, etc.) and an information systems architecture profile (current hardware platforms, current software, future plans).

Taking Applications

ONCE THE REQUIREMENTS definition and accompanying profiles are complete, you are ready to contact the vendors and begin the request for proposal (RFP) subprocess. This may involve several iterations in which you prescreen potential vendors using the system requirements that you have classified as "musts" to narrow the field. If a vendor doesn't offer or can't provide the critical items on your list, there is no use pursuing the process any further. Chances are there will be several vendors that can offer everything you need and more.

The goal of the RFP subprocess is to contact appropriate vendors and solicit financial system solutions. Your evaluation process will be more efficient if you can gather substantial information about the vendors and their products in advance. Management often will review this step to determine if adequate effort was made to identify the best solution. They will want to see that enough vendors were contacted and considered to provide management with the available range of alternatives. In many cases, they also will review the process to see that an equitable approach was used when recommending products for evaluation.

People frequently underestimate the time it takes to complete a thorough RFP. It's important to allow adequate time to consider vendors and products in advance. This way, the actual evaluation and review process can proceed much more quickly. However, you should also be careful to budget the time you allot to each potential vendor. If permitted, vendor salespeople will monopolize your time and your staff with frequent meetings, stacks of literature and even fancy lunches. Consider in advance how many meetings with each vendor you will have. Also, determine before the process begins how many people from your company will be involved in vendor demonstrations.

One way to manage your interaction with the vendors is to put together a schedule for the project and present it along with the RFP. This could include both a timetable for the process and procedural guidelines for delivery of proposals, arranging information meetings and product demonstrations and handling questions and answers. Such a schedule provides and a structure for you and the vendor to follow and measure progress against.

How does one find the appropriate vendors to solicit proposals from? One way is to search reference books or services (e.g., DataPro, DataSources) for vendors. Another way is to review trade publications for relevant articles and advertisements. A third way is to use your hardware and software vendors to do some of this work for you.

Vendors usually have experience and access to resources you don't. They may have teamed with other vendors to deliver particular capabilities in the past, and hardware vendors (HP included) have liaison personnel who can steer you toward appropriate software vendors for particular applications. You will, of course, have to research for yourself the background of the vendors and the appropriateness of their solutions.

The Bottom Line

THE THIRD AND FINAL subprocess is the evaluation of proposals and selection of a vendor. This is often a whittling down procedure in which the original horde of vendors is reduced to a select few. Narrowing the field allows you to make a more detailed analysis of particular solutions. Also, once you have reduced the number of applications you are considering, you can usually afford to involve more people in the product demonstrations.

If considerable time has elapsed since the project began—and this is frequently the case—it's important to review the key factors to make sure you haven't strayed off course and that the key factors are still appropriate. The business world is constantly changing and the pace has increased. In a few short months, conditions may change dramatically enough to require different selection criteria and a different solution.

To pull the process together, you should prepare a comprehensive report on the viable solutions. By this stage, only three

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or four strong, potential solutions should remain. For the evaluation to be effective, the alternatives must be compared in an objective manner. This can be difficult if you are considering several hardware platforms or if multiple vendors are involved in some of the solutions but not in others.

Another obstacle to objective analysis can be your own organization. The analysis, evaluation and recommendation data will be most useful if it is reduced to a comprehensible set of information presented in a format people can review and interpret efficiently. Formats that are used widely and successfully include tables (or spreadsheets) with short summary narratives provided as backup. The executives who make the final decisions rarely have the time required to study a lengthy or disorganized report.

What's In Your Future?

YOUR GOAL MUST BE to make sure the financial system you select meets both the present and future needs of your company. It must be compatible with your company's overall business goals and information systems plan. To ascertain whether a particular system is a good investment, you need to consider what the future growth of your company is likely to be. A good system will provide you with the capability to address new business needs as they arise.

To stay abreast of tomorrow's business market, you may need to add financial services, such as currency translation, or you may need to adapt to a new computing environment. Ask yourself whether the system will accomodate the changes you are presently planning and those that are just in the back of your mind. For example, does it allow you to add electronic data interchange (EDI) capabilities or interface an imaging system?

It's crucial that your investment adequately meets the company's needs for the next *several* years. In the future, a poorly chosen financial system may impede your company's growth or hinder a strategic change. Likewise, choosing the wrong hardware or software platform can create problems for your information systems policy in the future. How well this financial system will integrate with other corporate systems now and in the future should be a primary concern. Without a forward-looking information strategy, selecting a financial system or other software application could become considerably more expensive in the long term.

Another issue you should consider is how your financial operation differs from standard financial procedures. Some financial concerns result from the industry your firm is in (e.g., the need to handle partial payments, track factors, handle multiple companies, track internal project costs, etc.). Most financial system vendors have been around long enough to develop incremental modules that can be added to their systems to handle specialized industry features. Therefore, the final differentiating factor frequently amounts to the systems' capability to provide certain specialized, non-standard or esoteric types of functionality.

In selecting your system, it is always best to avoid bargain hunting. Software purchased at bargain-basement prices often turns out to be worth exactly what you pay for it. An inexpensive package could lack critical features, require the purchase of additional modules or offer weak customer and implementation support. Read the fine print when considering special deals and promotional offers. If the vendor is reliable and the package meets your needs as specified in the requirements definition process, then by all means take advantage of a good deal. But remember that a promotional offer could be part of an effort to clear inventory before a replacement product (computer, disk drive, software release) is introduced. You don't want to get left out in the cold for the sake of short-term savings.

One of the most valuable and often overlooked information gathering tools is the reference check. When you're faced with several financial systems that all offer the basic services you need, the vendor's background can be a key determining factor. The number of years the vendor has been in the financial software business, the size of the vendor company, the number of sites where its product is installed—these are all important concerns, and most of this information is easy to come by.

But vendors also provide conversion and implementation services, and their track record for implementing systems and providing ongoing support should be of interest to you. Use the references from the vendor as a starting point for gathering this information. Also, investigate whether there's a software users group, find out how frequently updates to the system are released and ask users how their implementation went.

In The Final Analysis...

THERE ARE MANY USEFUL methods and tips for a successful system selection and implementation. However, without the backing of the decision-makers in your company, good project management skills and the right personnel, all the methods, procedures, and tips are useless. Good people can make a less than optimal system work; and poor management teamed with weak personnel can turn the best system into an unworkable mess.

Put the right people on the project, provide strong management and align the system selection with your company's goals, and you will guarantee success. The future of the company will in part depend on the future capabilities of the system you buy. A well-planned purchasing process will help ensure that you buy a system not only for what it does now, but for what it will do and allow for in the future.—*Mitchell Kleiman is principal of MNK Consulting, San Rafael, CA.*

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Calculated RISC

Offering Cost Savings Through Improved Price/Performance And Increased Reliability, RISC Is No Longer A Gamble

BY RON LEVINE

Remember that old 80/20 rule, the one that was such a big craze during the 1980s and sold so many books? You could hardly watch TV or attend a lecture on business management without some "expert" spewing his "expertise" on how to better manage your time. He'd spout such phrases as "20 percent of your customers take up 80 percent of your time," or "80 percent of your effort is spent on 20 percent of your income." Bowled over by this profound insight, studio audiences would nod fervently with agreement.

Well, several computer scientists believe that this 80/20 rule isn't only people-oriented, but also applies to machines. Their research indicates that 80 percent of the complex instructions being built into current computers are seldom (sometimes never) used. They've set out to eliminate these rarely executed instructions along with their associated "extra" circuits.

Hewlett-Packard is one of the leaders in applying RISC technology to the new generation of computer systems. Sun, Motorola, MIPS, Sun and others all offer RISC processors; DEC is reportedly working feverishly on a RISC-based VAX. Even chip industry giant Intel, the leading manufacturer of CISC microprocessors, has added RISC processors to its standard line (including the i960 used in HP's 700/RX terminals).

Will RISC completely replace present-day CISC technology and become the new standard? Right now, it's still too early to tell. But the strengths and advantages of RISC systems are becoming more evident everyday.

Simple Instructions

COMPUTERS BUILT IN THE 1950s and early '60s were simple machines. Their small, limited instruction sets were "hardwired in" as part of the machine's architecture. These instructions defined what operations the computer could perform and determined its limitations. And, these internal instructions were usually on a one-to-one relationship with the instructions used by the programmers, which were ei-

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CIRCLE 460 ON READER CARD

ther written in machine code — binary 1s and 0s — or assembly language.

Because the CPU and memory were implemented in similar technologies, they operated at the same speed. Thus, the system was in balance. Data to be processed was usually fetched from memory, then loaded into CPU registers, computed, and the results stored back in memory. Data constantly moved back and forth between the CPU and memory.

To keep things running smoothly, the computer performed its operations in two cycles: It fetched instructions on the first cycle and executed them on the following one. This kept the flow of data stabilized—with memory being accessed on every instruction cycle, and running at the same speed as the CPU. All worked well, for a while. But new advances in both hardware and software during the mid-1960s threw a monkey wrench in the system.

Hardware breakthroughs increased CPU speed significantly but, because of cost constraints, memory circuitry continued to be implemented using slower technological devices. Now, suddenly, the machine was out of balance, with the CPU sitting idle much of the time waiting for memory to catch up. Computer engineers had to address this speed disparity.

At the same time, advances in software caused experts to consider design changes in their system implementations. High-level languages, that made computers easier to use, also removed the one-to-one ratio between programmers' instructions and the computer's internal instructions. It took several machine instructions to execute one high-level language instruction.

This translation of high level language down to the machine code level had to be done by a tool called a compiler. In turn, this translation slowed processing time by adding to the system's overhead (i.e., it required additional machine cycles). To close the programmer-to-machine instruction ratio and eliminate some of the increased overhead that reduced CPU performance, computer experts needed to improve system design.

They had to change the way the CPU fetched instructions and data from memory. By reducing the frequency of memory accesses, from every cycle to every few cycles, the faster CPUs could perform more work in the same time period because they wouldn't be held up waiting for the slower memory circuits. To accomplish this goal, computer designers developed what is now called Complex Instruction Set Computing, or CISC.

The traditional design methodology employed for building computers over the last 25 years is known as complex instruction set computing, CISC reduced the number of memory accesses by providing more information on each access. So that the system could recognize these complex instructions, engineers built additional circuits into the CPU. A separate high-speed storage area, called a control Store, decoded and dissected these complex instructions (known as macrocode) into a series

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of simple (smaller) instructions (microcode). It was the microcode that performed individual, specific functions.

In the early years, a computer only may have had 10 built-in instructions; but as time went on more and more instructions were added, via microcoding, to the circuitry. A typical CISC computer has approximately 250 to 350 different instructions within its repertoire (e.g., the IBM model 370 and the DEC VAX series use approximately 350 instructions; HP 3000 MPE V machines use about 250).

Although CISC required extra machine cycles for the decoding of the macrocode into microcode sequences, the CPU operated so much faster than memory, that the time saved by reducing memory accesses far exceeded the increase in CPU overhead. So, complex instructions replaced hardwired instructions as the new computer design standard. And system performance improved.

Complex Problems

OVER THE LAST 20 YEARS, more and more complex instructions were added to increase the computer's vocabulary and more closely match the programmer's language(s). At one time, computer engineers mistakenly believed that by continually increasing the complexity of the instruction set, memory time and translation time would be further reduced, thus improving performance levels.

Instead, as the instruction-set continued to grow, more and more CPU time was spent "looking" for the right instruction to use. With so many choices available, the computer needed considerable time to select the exact instruction required. Also, because the number of instructions within the CPU grew so large, it became difficult for software compilers to use all of them. The many complex instructions formed a highly complicated array of very specialized functions.

At first, the extra CPU time needed to sift through longer instruction sets, evaluate the best possible instruction and then breakdown (decode) the instruction into its component parts didn't have much impact on processor performance. The CPU was still able to select and decode instructions much faster than the memory could store and retrieve data. The increase in processor cycles required to support the decoding process simply went unnoticed. The CPU still had plenty of time to get through its instruction maze while waiting for the slower memory to provide the next bytes of data.

Progress marched on, however, and two major technological breakthroughs changed the rules for CISC computing. First, new advances in compiler technology sped up the translation process. Next, high-speed hardware, together with reduced manufacturing costs made powerful new IC (integrated circuit)

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Clearly, the unchallenged standard of complex instruction set computing was no longer effective; technology advancements had outdated it.

memory chips available. These two advances in turn enabled the next development: cache memory.

Cache circuits were new, cost effective, high-speed IC memory devices. Caches used the latest chip technology, and were extremely fast and reduced the need to access main memory. In fact, caches often were kept waiting while the CPU was busy decoding complex instructions—the speed discrepancy between the CPU and memory had been reversed! Suddenly, thanks to memory cache, the extra time spent decoding complex instructions became the primary limitation to increased CPU performance.

Once again, these changes and conditions necessitated a reevaluation of the way computers were designed. Computer scientists conducted research on how to further improve system performance through basic computer design changes. And the results were surprising.

Enter The 80/20 Rule

RESEARCH INTO THE relationship between the instruction set and instruction execution showed that 20 percent of the instructions were executed 80 percent of the time. The complex instructions, that took up about 80 percent of the space in the control store unit, were rarely used. The instructions being executed the majority of the time were the simple, original "hardwire" ones, such as LOADS, STORES and BRANCHES. Clearly, the unchallenged standard of complex instruction set computing was no longer effective; technology advancements had outdated it.

Experts then engineers speculated that a return to a simplified instruction set, hardwired into the computer (as in the early machines), would be able to make the best use of the speed that technology provided.

This back-to-basics approach meant there wouldn't be a need to decode complex instructions. With the large processing-time overhead eliminated, computer performance would again be enhanced. The control store (that requires about half the real estate on a CPU chip) also could be eliminated, allowing room for the incorporation of additional processing circuitry on the same sized chip. Design experts began to investigate the development of computer architectures oriented toward the small instruction set which, according to their research, dominated computer operations. A new design concept called reduced instruction set computing (RISC) was born.

The RISC Factor

RISC IS A DESIGN methodology that attempts to reduce the overall complexity of a CPU. RISC designers take a mix of the most often executed, basic (simple) instructions, hardwire them into the computer's architecture, and then use them as building blocks to perform all simple and complex operations.

As in early computers, the instructions are part of the hardware, thus eliminating the need for microcode. Because there's no macro (complex instruction) decoding necessary, and memory and CPU are again implemented in similar technologies, instructions can execute on almost every machine cycle. And, because of the simplicity of the RISC architecture, higher clock speeds can be used to shorten machine cycles. All this adds up to increased performance. The combination of a streamlined instruction set and reduced parts used in RISC machines also means reduced design time, reduced manufacturing costs and increased reliability.

RISC is a design concept, there's no exact model to follow. There are no standards requiring the use of specific instructions or architectures. There can be (and are) many different, innovative implementations of the RISC concept. Each design team incorporates those instructions that, when combined in designated sequences, best meet their goals. The few simple instructions in a RISC processor don't limit the CPU's ability. Instead, they enhance it by acting as building blocks that provide appropriate combinations to emulate the best complex instruction design architectures. RISC computers do this without wasting cycle time or hardware on instructions that are seldom used.

Some characteristics common to most RISC designs include:

- A reduced instruction set (commonly 30 to 100 simple instructions).
- Fixed-length instructions.
- Fixed-format instructions.
- Hardware-implemented instructions (all instructions are encoded in the RISC chip set).
- Reduced memory access. Only LOAD and STORE instructions access memory.
- Elimination of microcode.
- Pipelining (some instructions are fetched while others are executed).
- Optimizing compilers that efficiently translate user programs into machine-language instructions.

Each manufacturer adds features into its implementation of RISC computing to increase flexibility and system performance.

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Often capability/performance trade-offs must be made because of factors such as limited real estate on the chip, coprocessor support, and virtual address space requirements. All of these items can impact CPU performance in specific applications.

HP RISC Processors

AT HP, RISC CONCEPTS have been assimilated into HP Precision Architecture and deployed throughout the company's diverse product offerings. HP engineers researched several real-world environments, employing systems of the major manufacturers (such as HP, IBM and DEC) to study how computers actually process information. During their research, they traced and analyzed the execution of billions of machine instructions by various application programs.

The goal of this project was to design a single machine architecture with a pragmatic instruction set that could be leveraged across several market segments. HP hoped to implement this architecture in one family of computers that could provide outstanding price/performance in a wide range of scientific, engineering and commercial applications. They also planned to design systems suited for both standalone and multiuser environments. The result, of course, was PA-RISC.

Using the basic RISC concepts depicted above, HP has added its own unique extensions to the RISC model, including:

- A large virtual memory with 64-bit addressing capability (with the potential to address more than 18 trillion bits of data).
- A three-level pipelining system.
- Memory-mapped I/O subsystem (for ease in implementing user direct I/O functions).
- Support for coprocessors & multiprocessors.
- Scalability (PA-RISC employs the same instruction set from low- to high-end implementations).
- Compatibility with current HP systems. It isn't necessary to rewrite present HP application programs to get the benefits of Precision Architecture.

HP wasn't the only manufacturer to put its faith in RISC. According to Intel, its RISC processor, called the i960 is capable of executing up to 66 mips,which would make it at least somewhat competitive with HP's 76 mips implementation of PA-RISC. But despite its relative success with RISC, Intel seems to be backing away from the technology in order to protect its enormous CISC-based PC business. It recently announced plans to keep its CISC chips one step ahead of future RISC competitors with a planned 100 MHz version of the 80486.

In answer to HP and Intel, MIPS Computer Systems Inc., which supplies the RISC chips for Digital's DECstation systems,

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announced the R4000 processor. Supposedly this chip will be the cornerstone of a new PC development project being pushed by the Advanced Computing Environment (ACE) consortium led by MIPS, Microsoft, Compaq Computer and DEC. United under the ACE banner, these companies are aiming for a new RISC standard in PCs in hopes of unseating industry leaders IBM and Apple. The new RISC-based PC won't be available until sometime next year.

Motorola Inc., maker of the 88000 RISC chip, enhanced its performance with the addition of a 25 MHz version (the older chip is a 20 MHz model). Sun Microsystems' SPARC architecture and IBM's RS/6000 workstations (using its own RISC chip), continue to be industry leaders in RISC for desktop systems. Rumor has it that Sun's SPARC has fizzled out because of insufficient scalability. IBM, on the other hand, appears very well-positioned to challenge HP for the RISC performance lead.

Intel and Motorola both have played down the importance of RISC technology. It isn't surprising because they're the two biggest producers of CISC chips and would stand to be the biggest losers if the "standard" were switched. However, it's important to note that although they both claim future enhancements to their CISC processors will allow them to keep pace with RISC, both companies have introduced RISC-based processors — hedging their bets, I guess.

In the microprocessor world, all 1990 RISC sales combined accounted for only about 10 percent of what Intel alone sold in CISC chips. But the desktop PC market may not be a valid barometer of RISC's desirability; for one thing, PC buyers are less interested in the dramatic performance improvements RISC offers than are customers in the larger system markets.

Why RISC It?

Proponents of RISC say the performance gap between CISC and RISC is widening. Many in the industry think that by the mid-90s RISC will be the dominant technology. The inherent faster design times, lower manufacturing cost, improved price/performance, and higher reliability (due to fewer components used) will "win over" the disbelievers.

Right now it's too early to tell if RISC will replace CISC as the standard for computing architecture. But, if its promise that going back to the basics leads to enhanced performance and lower costs holds true, it may serve as an important lesson for many other American industries.

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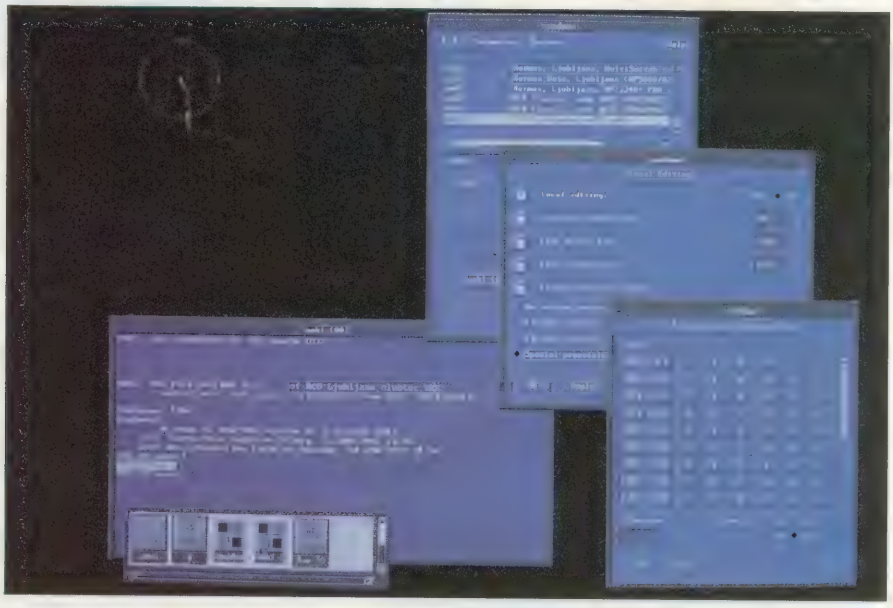


Launch PAD

PADEMU From Hermes Softlab Transports Your HP Systems Into The World Of WANs

By Tim Cahoon

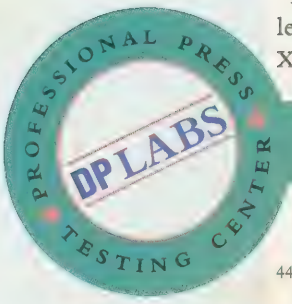
PADEMU is a product from Hermes Softlab that meets a real need in the HP environment. PADEMU allows your HP 3000 (Classic or XL) and 9000 (300, 400, 700, and 800), to communicate using out-bound PAD (Packet Assembler-Disassembler) service across an X.25 network to both HP and non-HP hosts.

Currently, for HP users, communication with non-HP hosts is restricted primarily to Telnet. Over an X.25 network, the additional overhead of Telnet may be objectionable. Because of this, HP recommends the use of PAD access instead of Telnet over X.25. According to HP, "PAD will provide higher performance, less expensive interactive sessions over X.25 than Telnet." (See data sheets on ARPA Services/XL Technical Data for HP 3000 Series 900 Computers, available from your SE or account rep.)

For this review, I evaluated the Classic HP 3000 version. Of the three platforms on which PADEMU runs, the HP 9000 version offers the most features, followed by the one for MPE XL systems. Still, the Classic MPE V version provides everything you need for out-bound PAD support.

The Purpose Of PAD

To help you understand what PADEMU does, let me first describe in-bound PAD support. In-bound PAD support allows terminals connected to a PAD, such as an HP 2334A, or users dialing via modem to



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a public X.25 network, access to your HP 3000. Once connected, they become ordinary terminal users just like those directly attached.

The next natural extension would be the reverse of in-bound PAD support (i.e., out-bound PAD support). Out-bound PAD support lets you access an X.25 network as if you were directly connected to a PAD. Using this feature enables you, from the terminal on your desk, to connect to UNIX workstations, database services such as Dow Jones, information networks such as CompuServe, and much more. All the remote hosts need to do is provide in-bound PAD support.

Out-bound PAD support is provided by many vendors with their X.25 software. You can find it on PCs and Sun workstations. But it's missing from the entire HP line.

The lone requirement needed to run PADEMU is the appropriate HP X.25 Link installed on your machine. Keep in mind that in-bound PAD support only is provided by the X.25 gateway software on remote hosts. You can't PAD into a remote host down the Ethernet from an X.25 server. In most cases, you have to log on to the X.25 server first, then Telnet to the other system.

Installation

Installation on my Classic 3000 was simple. I logged on as MANAGER.SYS and restored the files from my tape into PUB.SYS. There were four files on the tape. PADEMU, the main program; PADDOC a documentation file; VAX, a sample profile, and TT66, a special terminal type file. No system shutdowns or MPE configuration changes were necessary.

The next step was a little harder. Running under MPE V, I had to configure the remote hosts to be called into NSCONF using NMGR. There must be an entry in the SVCPATH screen of NSCONF and a corresponding directory entry in NSDIR. You will only be able to call hosts defined in this manner.

This requirement is eliminated in the XL and HP 9000 versions. All hosts, their addresses and the X.25 interface name can be defined in an external flat file called X121ALIA. The file is very similar to the TCP/IP host configuration file found in the UNIX world. The MPE XL and HP 9000 version of PADEMU will read and use entries in the HP supplied X.25 configuration files. The external file method is preferred because PADEMU provides your users with a command call LIST that displays the hosts they can access. Hosts defined in the HP directory files are not able to be displayed by this command.

One trick I discovered was to configure a host with just the DNIC part of an X.25 address. I called my host TYMNET, because that's the public data network (PDN) we use, and entered 3106 (their DNIC) as the X.25 address. Now, when I called host TYMNET, I got the public network prompt. From that prompt, connection could be made to anybody I desired using a proper Tymnet network user id. It worked just as if I had dialed the local access number with my modem. A similar approach may work with your X.25 PDN.

To use PADEMU, just run PADEMU.PUB.SYS. The software displays a banner followed by a "@" as a prompt (just like an X.25 Pad). All you have to do is specify your network interface (NI name), the name of the host you want to call (NODE name), and then type CALL. That's all there is to establishing a PAD connection using PADEMU.

Using PADEMU

I used PADEMU to connect to other HP 3000s, X.25 monitoring systems via Tymnet and Sun workstations. The connections were made quickly and easily. The first time a connection was made to a specific host some of the default settings had to be changed. Once the correct settings were determined, a PADEMU PROFILE was created to simplify future access to that host.

One thing I liked about PADEMU was that I could use it within my HP 3000 session. I didn't have to log off, connect to a modem and dial out to get into the X.25 network. I also didn't have to leave my desk and use some other hardware to accomplish a given task. When accessing a remote HP 3000 Classic system, I found response times were much better than I would expect from a remote session using NS/3000.

PADEMU does, however, have one significant limitation for HP 3000 users. It does not support block mode processing on Classic or XL systems. That should not be a problem for most HP 3000 users, because they are likely to be contacting non-HP systems. Fortunately, block mode support is provided on the HP 9000 version of PADEMU. HP 9000 users should appreciate this because it enables them to access HP 3000 applications.

PADEMU Features

PADEMU's PROFILES feature assists your users in contacting a remote host. A PROFILE is an 80 byte file containing PADEMU parameters for a specific host, such as network interface name (NI name), host name (NODE name), terminal type (TERM), ECHO (local or remote), and PARITY (on/off). Profiles can be invoked from within PADEMU or at runtime by using an INFO statement.

The PARITY command requires some explanation. Parity itself is not used in the

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actual X.25 communication process. The PARITY command determines how your data should be processed before it is sent or displayed on your terminal. I found it was needed when accessing hosts that your users would normally dial into via modem with EVEN parity.

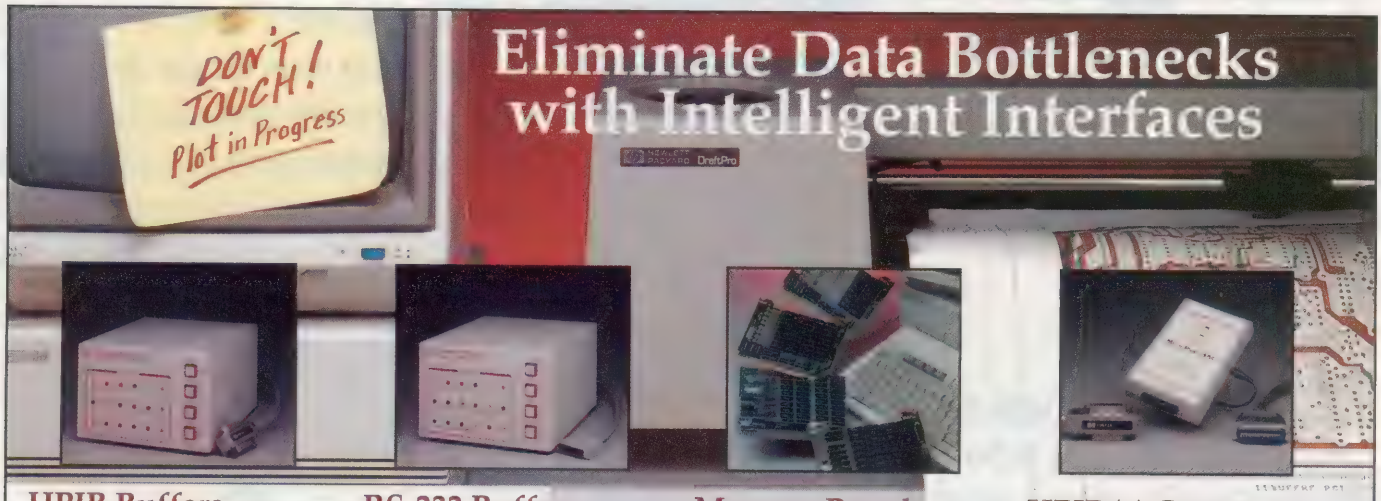
The TERM command places your terminal in the correct mode for the host you're calling. TERM VT52 causes your HP terminal to be set in EM52 mode. TERM VT100 sets the terminal in ANSI mode, and TERM HP resets it to HP2392A mode. TERM passes the escape sequences to your terminal to put it into the specified mode. When you exit the program, it sets your terminal back to HP mode automatically if needed. You also can reset your terminal by issuing the appropriate TERM command.

Because PADEMU emulates a PAD, you need the ability to change the X.3 parameters. Every version of PADEMU allows you to make X.3 parameter changes. How many you can change depends on the system on which you're running PADEMU. The Classic version allows only a few X.3 parameters to be changed. The HP 9000 version allows all of them to be changed. The MPE XL version falls somewhere inbetween.

The MPE XL and HP-UX versions of PADEMU also offer an access control feature called PADUSERS. Using this file, you can specify which users have rights to access the X.25 network and which hosts they can contact. This capability only exists for those hosts defined in the X121ALIA file. MPE XL and HP-UX users also can log accounting data to a file for audit or chargeback purposes. The file records the user running PADEMU, the host called, what X.25 interface was used, and the number of minutes, bytes and packets used.

GUI fans can also purchase PADEMU with a Motif interface for HP-UX. In addition, the HP 9000 version sports an option even more exciting than Motif. PADEMU for HP-UX is available in a true client-server version. The server version resides on the system with the X.25 link. The client version goes on another HP 9000. This enables one or more users of the client machine to concurrently and transparently access the X.25 link on the server. No logons are required to use the server software. It is completely transparent to the user.

If you have an X.25 network today, you should be looking at PADEMU. It has the functionality you need, is easy to use, and lets you communicate with non-HP hosts. It's worth the price, and I'd put it on my list of recommended network software.



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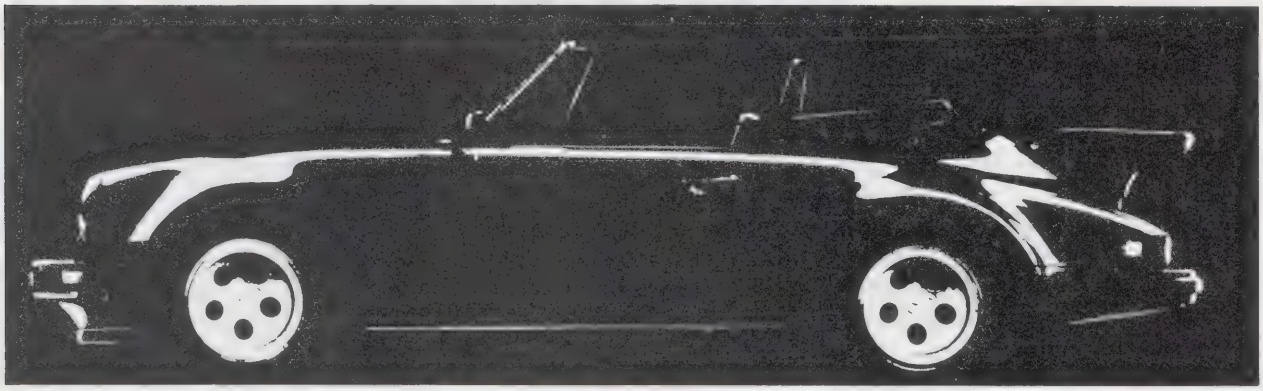
CIRCLE 126 ON READER CARD

IN ORDER MANAGEMENT SOFTWARE:



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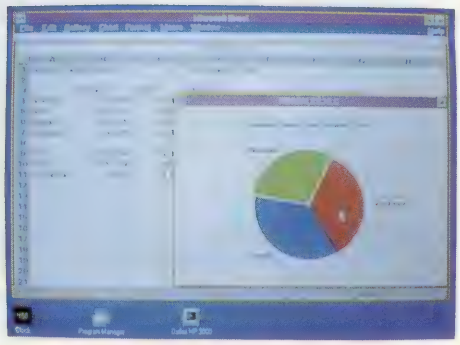
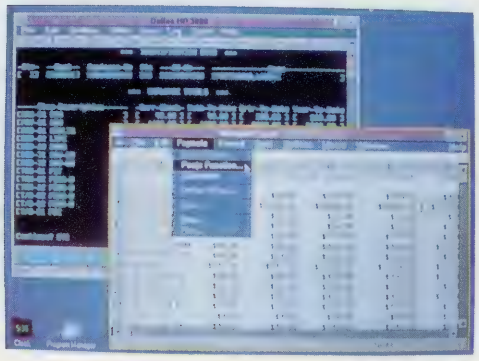
Hosts and PC's have

Your sales department needs frequent, easy-to-interpret snapshots of sales by region. Session provides the data needed, and Excel presents that data graphically. With Session's full implementation of DDE and DDE templates, no changes are needed to the HP 3000 or HP 9000 application previously used.





Your financial department needs an easy way to extract data from the HP host and manipulate the data in a spreadsheet for analysis. Session and Excel, working together, can do this automatically every morning, providing up-to-the-minute data for crucial financial decisions.

Are you tired of listening to users complain about how difficult and time-consuming it is to get host computer information into their PCs?

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Using Business Session® for Windows, scripts can be created that automatically retrieve host data and pass it to Windows applications. Because Session supports Microsoft's Dynamic Data Exchange (DDE), Session can talk to programs like Microsoft Excel™ and Word™ for Windows, with no involvement on the part of the user. This puts information where it's needed, when it's needed, and allows easy analysis using your PC applications.

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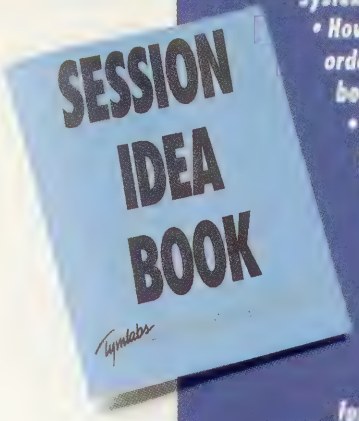

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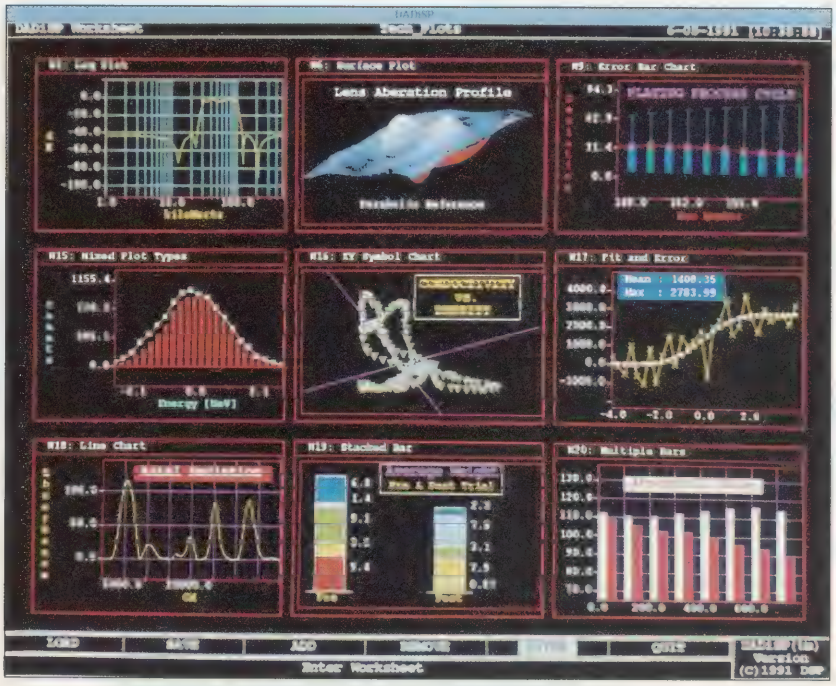
An Engineer's Toolbox



DSP Development's DADiSP Lets You Perform Data Analysis On Waveforms, Signals And Graphs — Spreadsheet Style

Using the right tool to view and manipulate a series of data, leads to a clearer understanding of the data. And when you want to analyze cause-effect relationships among waveforms, your data analysis software tool needs to stay sharp.

DADiSP (pronounced *day-disp*; Data Analysis and Digital Signal Processing) is a graphical, post-acquisition, data analysis package for scientists and engineers.

DADiSP can be viewed as an engineering spreadsheet for waveforms, signals and graphs. In a standard spreadsheet, numbers and formulae are entered into cells. When you change data in a cell, part of the (or the entire) worksheet is updated instantaneously.

Where a spreadsheet consists of cells that contain numbers, a DADiSP worksheet has windows that hold entire waveforms. Changing the waveform in a DADiSP window causes the other windows that reference it to change.

We installed DADiSP 2.01B on our HP 9000/834 workstation running HP-UX version 7.0. We created the directory **/users/dsp**, and copied the media into it. DADiSP installation was fast and easy.

After changing to the **dsp** directory, we typed **demo** to execute the DADiSP demonstration. You also can execute the DADiSP program itself by changing to

By George T. Frueh

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the **dsp** directory, and then typing **dsp** at the HP-UX prompt. Typing **bigdsp** executes DADiSP in a larger window.

Get Out Your Labbooks

Once you start the DADiSP program, the DADiSP window pops up showing you the list of Labbooks in your current working directory. A Labbook is similar in concept to a conventional labbook where experimental data and mathematical formulae are recorded and applied to that data.

Selecting the menu item Open displays all of the Labbooks in your current directory. When you first start DADiSP, TUTOR2 is the only Labbook available. A Labbook consists of DATASETS and WORKSHEETS.

A DATASET contains one or more data files called Series. Series can consist of raw data you want to analyze, the plotted results of processed data or waveforms in a worksheet. Signals and waveforms are also treated as Series, but with a time dimension.

WORKSHEETS store your processing or analysis steps as Windows. They're the graphical programs you design to display and process data Series.

The TUTOR2 Labbook is a tutorial session designed to introduce you to DADiSP. The tutorial lets you experiment with DADiSP data files and series analyses before you start working with your own files. "First Things First" in the User's Manual guides you through the TUTOR2 Labbook.

When you open a Labbook two boxes appear, DATASETS and WORKSHEETS. These boxes are initially blank. The menu bar contains a Worksheet item, which when selected displays a different menu bar that lets you begin creating windows. The menu bar contains the items Load, Save, Add, Remove, Enter and Quit. You must select Add when starting with a new worksheet and specify the number of windows to add. You can add up to 100 windows.

Squares And Ramps

For our evaluation, we used DADiSP to prove an old theory: The sum of an odd harmonic series of sine waves produces a square wave, and the sum of an even harmonic series produces a ramp wave. We created two worksheets and named them SQUARE and RAMP. Each worksheet contained 12 windows. The windows appeared in four rows with three windows in each.

The Square Wave was created by generating sine waves with odd numbered frequencies and decreasing amplitudes, then summing them together. The DADiSP trigonometric function GSIN (Generate SIN) generates a sine curve in accordance with specified parameters. We defined window one (W1) as:

```
GSIN(128,1/128,1)/1
```

This produced two complete cycles of a sine wave within W1. The first number within the parentheses, 128, specifies the number of points. The next number, 1/128, specifies the spacing between each point on the x-axis and is measured in seconds. The last number within the parentheses, 1, is an optional operand to adjust the frequency of the waveform and is expressed in cycles per second. This gives the sine wave a frequency of one cycle per second.

The peak-to-peak amplitude of the waveform can be reduced by dividing the entire expression. In this sine wave, the peak-to-peak value remained unchanged because division was by one.

In window two, we generated a second sine wave similar to the first. However, in this window, the sine wave had a frequency of three cycles per second with an amplitude that was one-third of the first sine wave.

In the third window, we created a sine wave with a frequency of five cycles per second, and with a more reduced amplitude than the second window.

We generated sine waves with odd number frequencies until we had 11 windows. The 11th window had a frequency of 21 cycles per second. We entered this equation into the 12th window:

```
W1+W2+W3+W4+W5+W6+W7+W8+W9+W10+W11
```

This added together the waveforms in the first 11 windows. In less than a second after entering the equation, a squarewave appeared in the 12th window.

The DADiSP zoom feature lets you click on any window and enlarge it. We clicked on the 12th window and observed a slight ringing on the edges of the squarewave. This appeared normal since only 11 waveforms were added together to produce it.

Creating a ramp (sawtooth) waveform was nearly identical to creating the squarewave. First, we generated sine waves with even numbered frequencies in the first 11 windows, and then added them together in the 12th.

The results were truly impressive for both waveforms. When we changed any of the variables in the first 11 windows for either SQUARE or RAMP, the result was immediately reflected in the 12th window.

DADiSP has more than 200 functions for data transformation including Fourier transforms, data type conversion and extraction, statistical functions, macro and command file functions, digital filter functions and query functions. ■

DADiSP

PLATFORMS: Any configuration supporting color or monochrome graphics. HP-UX version 7.0 or later, X11 windows; and X11 Windows compatible bit-mapped display terminal.

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PRODUCT LINE: Data analysis software and menu-driven software modules to control, transfer and filter data into DADiSP windows.

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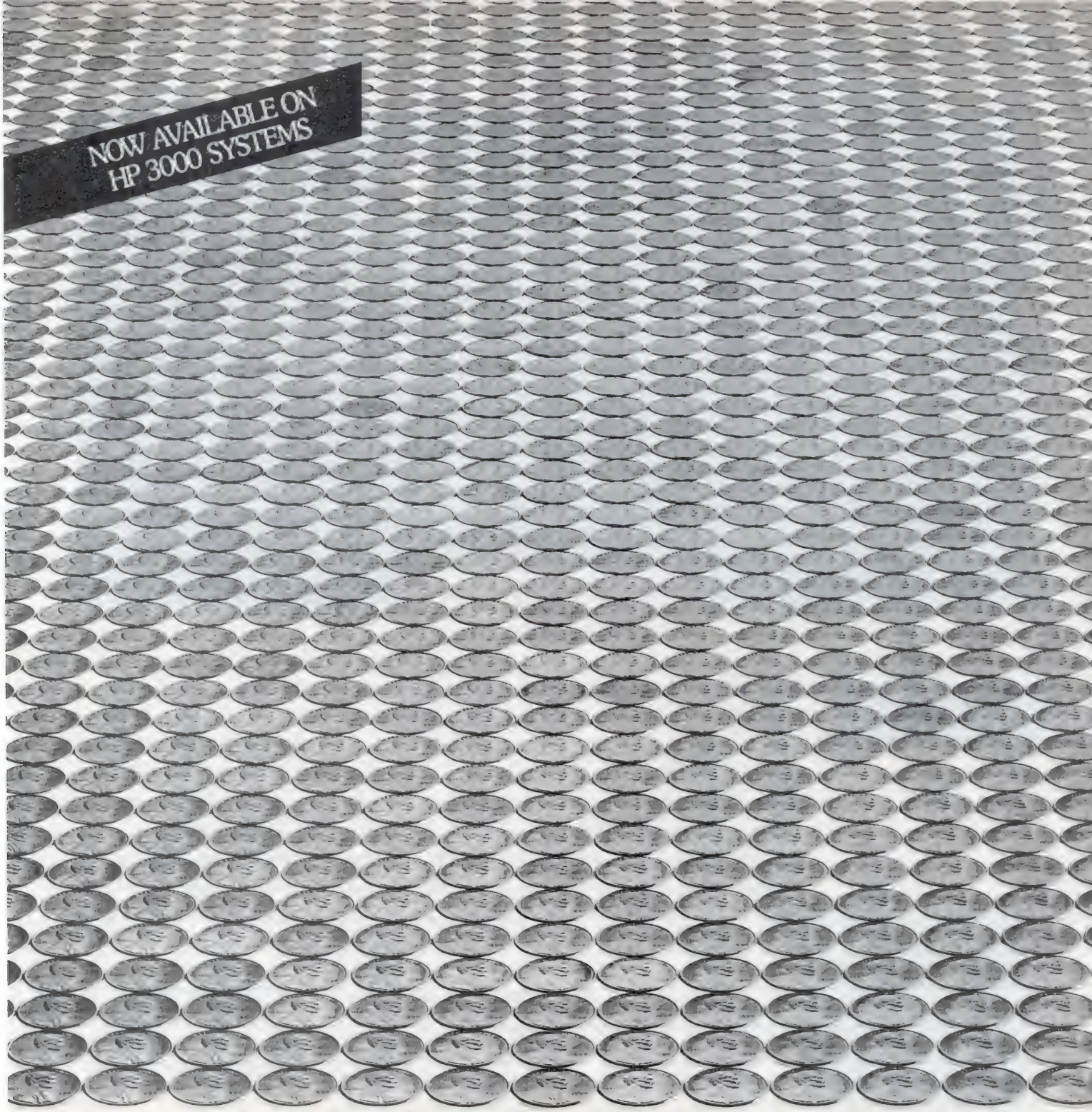

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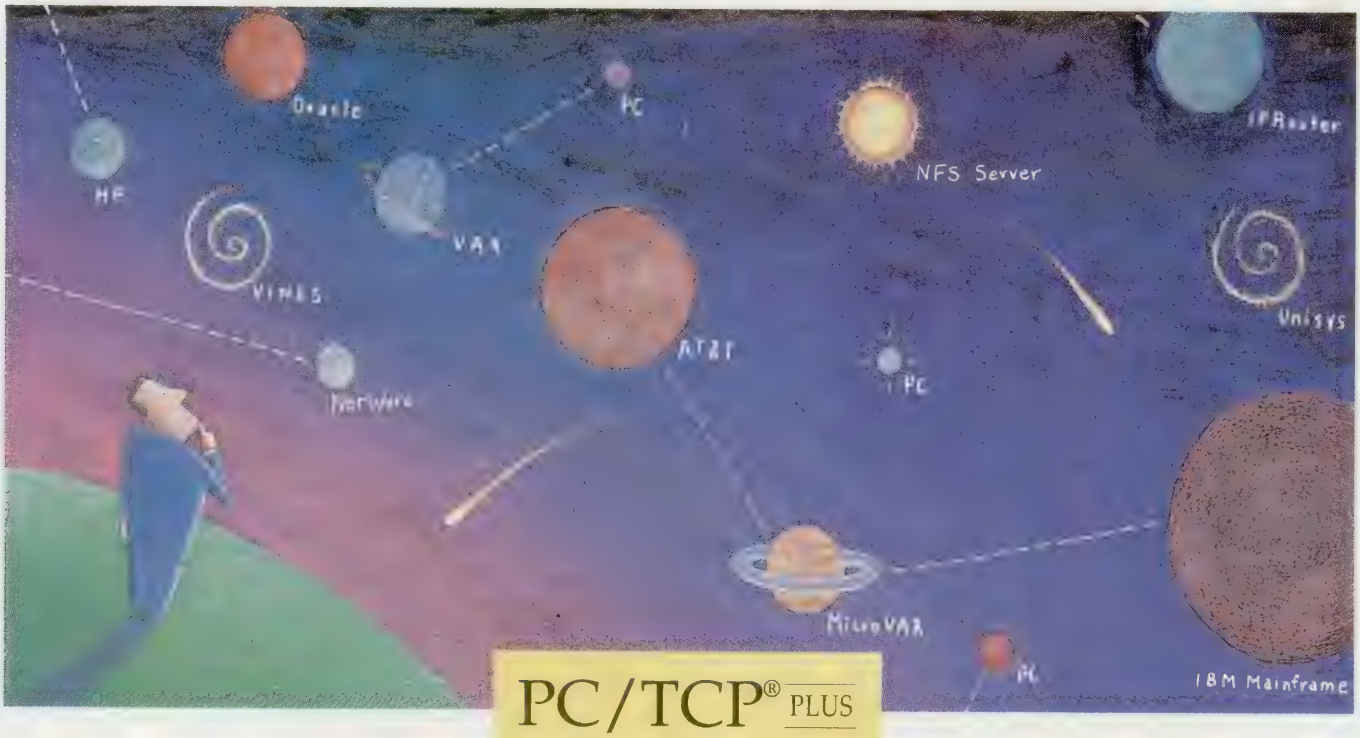

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CIRCLE 147 ON READER CARD

HP Professional

NETWORK SYSTEMS

From Desktop To Data Center, Client-Server Networks Offer Enterprise-Wide, Alternatives For Business Computing

SPECIAL REPORT

OLTP Is Everywhere!

BY BILL SHARP

From Factory Floor

To Retail Store,

A Fast, Sneaky

Technology Slips

Quietly Onto

Client-Server

LANs

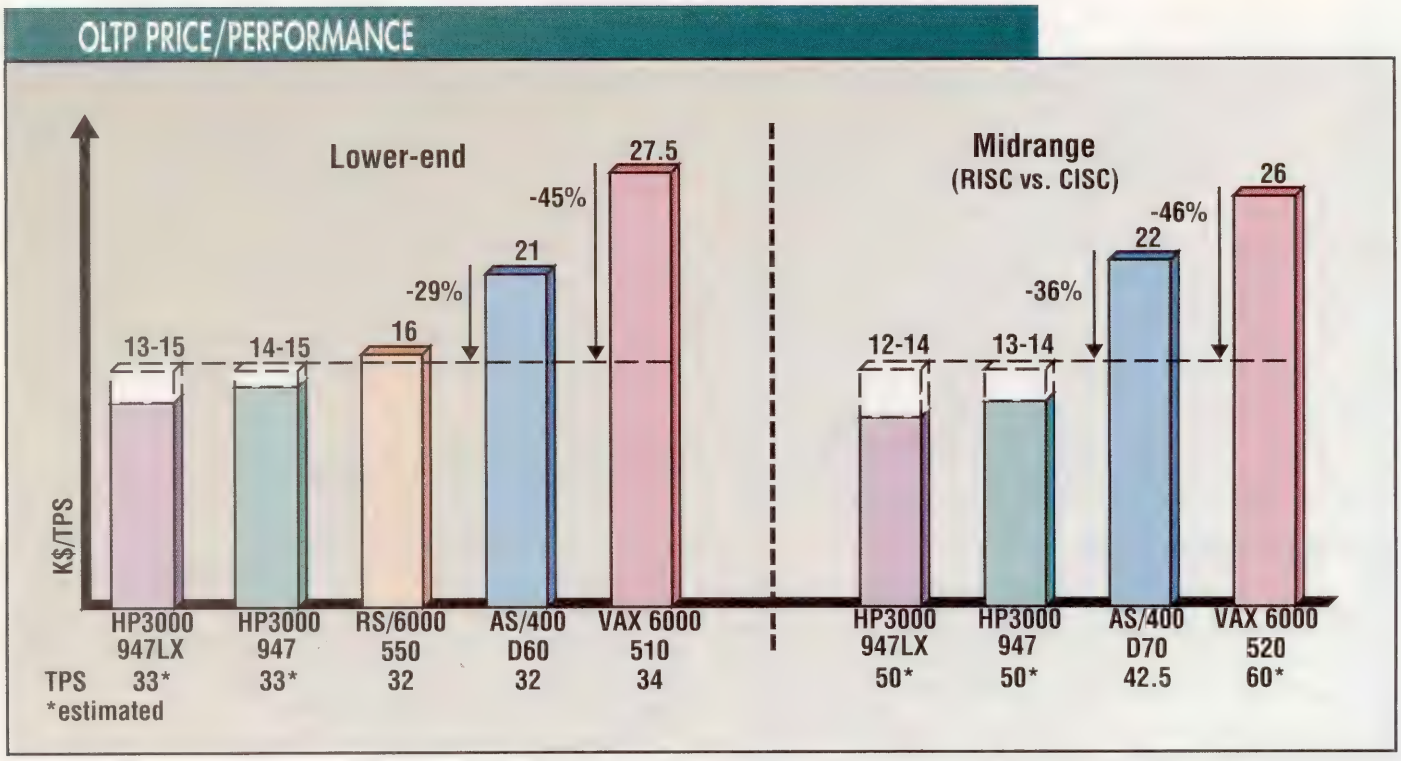
Sometimes things just grow. They grow like mad, like weeds, like the U.S. national debt—like really fast. Online transaction processing (OLTP) on HP systems is one of those things.

You might overlook OLTP. It isn't huge and dominant, but rather vague and pervasive. Instead of looming over our humdrum workaday lives and casting shadows, OLTP seeps silently and surreptitiously into our business activities. Lots of perfectly nice, respectable people engage in OLTP each day and they don't even know it. They are blissfully unaware of the ubiquitous qualities of OLTP—the fast, sneaky technology.

You may be asking yourself what this strange scourge of our modern society might be. Stripped down to the basics, OLTP means a fast transaction. The system must allow simultaneous access to a database by multiple users, support online, real-time (fast) transactions and perform with such reliability that the system can be a crucial part of business operations.

The examples most folks are familiar with are automated teller machines, airline reservations or car rental counters. You may be renting a car to Calais, reserving an airplane seat to Afghanistan or just grabbing bucks from the bank. In each case, the transaction involves checking information on a remote database while you stand there waiting. The company making you wait while they delve into the data doesn't want you delayed. Nor do they want to give you money if you're already overdrawn, or seat you on that flight in Mrs. Murphy's ample lap instead of in a seat of your own.

So the folks who own the OLTP system designed it to access and



HP expects its new low-end and midrange Nova systems to be industry leaders in transactions per second (TPS) and OLTP price/performance (K$/TPS).

update a database or file and send back a message confirming that update. That way, if you have no money in your account, the ATM says, "Sorry, we are unable to complete this transaction," and the bank avoids a potentially costly mistake. The system must operate fast enough that if you use your bank card at 3:35 and take out your last cash, it will know to decline another withdrawal 30 seconds later.

OLTP IN EVERYDAY LIFE

THIS MUCH YOU PROBABLY already knew. Now for the surprise. OLTP is spreading out into other kinds of transactions.

When you call some mail order house to order those classy hot pink hip waders for your next fishing trip, the person on the other end is probably seated in front of an OLTP screen. He will update orders and speed those waders out to you so you can frighten fish as soon as possible.

And out in New Jersey, when you order new pajamas for your Jersey girl (or boy) at a certain retail store, you'll have a new experience. When you searched for pink pajamas a few months ago, they were out of stock, and you stood there tapping your feet for 15 minutes while the clerk called seven stores seeking something in her size. Not any more. Today, when the pajamas are out of stock in your store, a central OLTP database tells the clerk in a few seconds which store has them, and that the store will send them for pick-up tomorrow from your store—bingo, no waiting, no hassles.

More importantly, OLTP systems avoid wasted time for businesses, frustrated customers, and error-ridden paperwork. If Patricia just purchased those purple pajamas, the OLTP system won't parcel out those particular pajamas to Pete as well.

OLTP now resides in HP installations doing things as varied as: distribution routing, manufacturing processes, state and local government applications, education scheduling and administration, mail order, credit union, sales processing, rental car reservations, accounting, dispatching and retail point of sale.

HOW IT SPREADS

BECAUSE EFFECTIVELY IMPLEMENTED OLTP brings benefits to the user, such as increased profitability, faster service and happier customers, it's no wonder that it's one of the driving forces in HP's current commercial computer success. But timing comes into play here as well. The move to broader use of OLTP is the result of no less than four computing trends:

- Information technology is now a tool for gaining the competitive advantage.
- Mainframe-based systems are being downsized to distributed computing systems that offer much-improved price/performance.
- New OLTP benchmarks make realistic system comparison possible.
- OLTP industry standards have arrived.

It gets boring hearing the same thing over and over from

HP folks—effective technology can make such a big difference in competitiveness that your business might regard it as a corporate secret. That retail firm in New Jersey is a case in point. I can't give the name because the company won't allow HP to release it. They consider the OLTP system of seven linked HP 3000s to be such a big deal that they want it kept quiet—but they'll gladly get your jammies faster, now.

Improving customer service, cutting response times, dropping bottlenecks and costs from the system all can improve profits. "All industries have become incredibly competitive," says Glenn Osaka, marketing manager for HP's Commercial Systems Division (Cupertino, CA). "The faster you can get an order from a customer to shipping, across any organization, the better and more competitive you can be. OLTP is a critical technology to enabling that time-based competitiveness."

BAD NEWS FOR BIG BLUE

THE COST OF MAINTAINING a large mainframe computing system is substantial. It's considered by some to be more than substantial—more like obscene. As midrange systems expand their capability, effectively linked minicomputer-based systems are more than adequate to take on most of the tasks relegated to the big boxes in years past. People are moving their applications down to networks of smaller computers. They're saving millions and getting better performance in the bargain.

Estimates of the downsizing market run as high as $2.4 billion in sales by 1992. The potential of this market has not been lost on HP.

HP has a whole program built around migrating customers to HP 3000 and 9000 systems from IBM mainframes. Recent official HP propaganda states flatly, "HP estimates that its systems often can save customers more than $1 million per year in cost-of-ownership when compared with mainframe computers." Then they cite examples including the move from mainframe to a network of HP systems at Foxboro, that will run order processing and manufacturing systems on the new hardware and expects to save $10 million per year.

This is no solo performance by HP—it has help from software vendors and consultants. One of these is Innovative Information Systems Inc. (IISI; Norwood, MA). David Rubinstein vice president of IISI, describes his firm as a systems integrator concentrating on producing project management tools and techniques. IISI does so much downsizing work that it has a partnership agreement with Infosoft of Germany to use that firm's Conveyor software for migrating applications onto HP 3000 and 9000 systems. Many of these systems are for OLTP.

"We've done close to 100 OLTP systems," says Rubinstein. "They include systems for distribution and order processing, sales/marketing, insurance and manufacturing. Distributed computing is putting the power where it's best used. We won't see the death of the mainframe, but it will be seriously wounded."

IISI put together that system of seven HP 3000s for the retail chain mentioned above. It's an application that not long ago would have been difficult or impossible for HP. Oddly enough, however, a mainframe couldn't have done it very well either, says Rubinstein. "A mainframe wouldn't have been able to handle the number of transactions between the on-line sessions and the batch jobs. That's part of the reason HP created this architecture. Customers were banging their heads against the wall.

"What [the OLTP system] does for the business is fabulous," Rubinstein adds. "You don't have those lost sales walking out the door anymore."

PROPRIETARY OBSTACLES REMOVED

OPEN SYSTEMS EXERT A powerful force on OLTP. Part of the high price of earlier OLTP systems, particularly those on IBM mainframes, is attributable to the effects of proprietary systems. Many vendors such as HP offer open-systems-based OLTP now, although HP is perhaps the only vendor doing well with both UNIX and proprietary systems for OLTP. Both MPE XL and HP-UX systems sell well into OLTP.

HP moved on another standards front earlier this year to provide more OLTP momentum. HP is one of six vendors who have endorsed OLTP technology from Transarc Corp. as a potential standard. HP made the announcement along with IBM Corp., Independence Technologies, Inc., Informix Software Inc., JYACC, Stratus Computer Inc. and Sybase Inc. Each of the firms will layer its own OLTP on top of Transarc OLTP methodology.

Transarc's technology complies with X/Open's distributed-transaction processing model and XA interface. It supports the client-server model, and uses Open Software Foundation (OSF) distributed computing environment (DCE) services. These services include HP Apollo's Network Computing System (NCS), remote procedure call and PasswdEtc authorization.

Osaka predicts that other distributed computing vendors who belong to OSF will soon follow suit in endorsing Transarc.

IT CAN'T HAPPEN HERE?

WITH YEARS OF MAINFRAMETHINK to deal with, many users still consider OLTP the province of the Big Blue boxes. "It takes a while for people to adjust their thinking," says Osaka. "We can go in and say, 'You can solve your problem that used to cost $13 million for $1 million instead' and some people don't believe us. People think they need mainframes to solve their problems." It's just not true anymore, he says.

Jon Davis is a product manager with Osaka who sees big changes taking place in high-end OLTP applications. "Until a year ago you didn't see any minis reaching into the 3090 range, and there was no basis for comparison, either," he says. "Now

T H E T O T A L S O L U T I O N

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with OLTP benchmarks and IBM mips ratings you can get an idea where things really are."

And where things are, he says, is that HP's price performance for OLTP is on top of the heap, and the sales figures show it. DEC's VAX 9000 can go head to head with HP's 980 on paper, "But benchmarks show the price performance of the HP 3000 is roughly 30 percent better," says Davis. The price/performance comparison gets really lopsided in the case of IBM, he says. Davis reports the price performance of an HP 3000 OLTP system is four times better than that of systems based on IBM mainframes.

But don't bother watching for HP's hot-selling OLTP systems. Chances are you'll never notice them. They're the fast, sneaky technology.

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[DISTRIBUTED OLTP NETWORKS: HP'S OPENVIEW NETWORK NODE MANAGER]

From an MIS manager's perspective, switching from a mainframe system to a network of midrange OLTP systems can generate huge cost savings. But what about the difficulties involved in managing this distributed computing network?

OLTP, by its very nature, is extremely time sensitive. The classic examples of OLTP, which include order processing for manufacturing companies, flight reservation systems, stock market computer networks, and financial and banking networks, all require some form of management to monitor each network node and provide instant feedback. The explosion of TCP/IP-based local and wide-area networks, corporate Internets and client-server environments has led MIS departments to search for solutions that minimize network downtime and maximize user productivity.

With hundreds, possibly thousands of networked system nodes located miles, cities or even continents apart, monitoring an entire distributed network is a formidable task. HP's OpenView Network Node Manager software was designed to solve the complicated issues behind mapping and managing multivendor networked systems. Successfully filling the needs of distributed OLTP networks, HP OpenView Network Node Manager provides fault, configuration and performance data for all equipment on a multivendor TCP/IP network.

SIMPLIFYING NETWORK MANAGEMENT

HP OpenView Network Node Manager automatically seeks out and "discovers" all system nodes, bridges, routers and other equipment on the network. Using the industry-standard OSF/Motif graphical user interface, a detailed visual map of the network is created. Each node is color coded on-screen depending on the type of system, and its function and status.

Network hierarchies, group and interconnections are all graphically represented on-screen. The product then continuously monitors all network and system resources across the network. Essential information about the network is readily available, including disk space utilization, CPU performance statistics and addressing information for remote systems. Any network changes are immediately reflected on a color-coded network map. With a quick glance at the screen, operators can observe the overall health of the network.

Developing applications to manage multivendor network environments can be complicated, time consuming and expensive. To meet this challenge, an application-builder feature within HP OpenView Network Node Manager allows developers and users to create applications that manage network devices using the Simple Network Management Protocol (SNMP) standard.

For example, an application can be developed without programming to monitor nodes and graphically display performance information. The application builder also can create programs to handle various network events and alarms. In just minutes, a powerful application can be built to give an operator the information he or she needs to quickly troubleshoot the network. In the past, this process would have taken hours or days of programming.

HP OpenView Network Node Manager also includes an event-notification feature, that allows network administrators to decide when they want to be notified about changing conditions on the network. Network diagnostic tools let users isolate and correct problems at the actual remote location, which could be thousands of miles away.

The Stock Exchange of Singapore (SES), which often exceeds the New York Stock Exchange in volume of trading, relies on HP OpenView Network Node Manager to manage its network of 1,800 systems. Brokers are connected to a network of HP workstations that display stock and share prices and facilitate the management and trading of customers' portfolios.

Moving from traditional mainframe OLTP systems to a distributed network requires a big leap, but HP has attempted to make the transition easier with network management services such as HP OpenView Network Node Manager. For a company making the switch to distributed midrange systems, the management of this new network deserves careful consideration. Reliability, ease-of-use and productivity of network and the network administrator are all factors that must all be taken into account when evaluating mainframe alternatives. With appropriate integrated-system and network-management tools, data center operations can be consolidated, reducing the ratio of operator to processor, eliminating on-site support for satellite locations, and lowering operating costs. —*Jeff Thiemann, HP OpenView Market Development Manager.*

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Battle Of The Network Stars

BY GORDON MCLACHLAN & TIM "OLLIE" CAHOON

HP Professional's Network Gurus Cut Through The Industry Hype To Tackle The '90s Hottest Topic—Downsizing

Editor's Note: Earlier this year, *HP Professional* traded off its networking columnist, Gordon McLachlan, to its sister publication *LAN Computing* for a first-round draft pick, HP expert Tim "Ollie" Cahoon. After a few months, we began to notice some differences in philosophy between the two of them. Gordon, it seems, has become a "workstation wienie with an attitude." Easy-going Ollie, on the other hand, remains more of a traditionalist, with a soft spot in his heart for the HP 3000.

It comes as no surprise that businesses are moving from mainframes to distributed minicomputers. HP has implemented a successful program that entices customers to do just that. However, we're starting to hear more about other downsizing scenarios, as well. Rumor has it that many organizations are moving from traditional minicomputer environments to workstations in client-server LANs. Open systems, portability and interoperability have transformed the minicomputer's role from data center host to network server. Anxiety over this trend has many traditional MIS departments rethinking their strategies and budgets.

Given all the hyperbole about downsizing that's fueling the industry today, we thought it might be fun—and enlightening—to let Ollie and Gordon chew on the same bone for a while. Downsizing: What does it mean? Who does it affect? What will it do to MIS as we know it? Have at it, fellows.—*Don Marks, Managing Editor*

Gordon: First of all, we have to figure out what downsizing is and how much downsizing is enough. The logical extreme toward which we're heading is whole bunches of PC clones and UNIX boxes on LANs, but I can see by the way you're hugging that HP 3000 that you've got a different idea.

Ollie: Actually, downsizing is a matter of perspective. Mainframe people think downsizing is moving down to minis. For those of us

with minis, downsizing is tossing everything out and replacing it with PCs and workstations. There's also a third way to downsize. That's by using network software to utilize your existing computing resources more productively.

Remote procedure call (RPC) software and network application programming interfaces (APIs) allow you to produce transaction processing and client-server applications that spread the load around. This way instead of upgrading the big box you can add mips by purchasing inexpensive high powered UNIX workstations (like the HP 700 Series) and turn them into dedicated servers. You also could have purchased a PC, a minicomputer or something in-between. This strategy gives you more mips at a lesser cost and you don't have to replace everything all at once. RPC and API software is available for all types of machines.

Gordon: That almost makes sense. There's not much justification in throwing away stuff that works, but why do new development on proprietary platforms? You can't turn a dinosaur into a mammal by gluing hair on it.

The litmus test for a good downsizing strategy is simple. Are your systems scalable and portable? That is, can you run them on suitably-sized boxes and can you move them from box to box? That's also a good definition for open systems. The two go hand-in-hand.

For the downsizing experiment to work, you need open systems, and the best way to get open systems is to head toward the "standard" PC and UNIX commodity platforms.

Ollie: Gordon, read my lips! Open doesn't have to mean UNIX. HP is making MPE open by complying with the Open Software Foundation specifications. Systems are scalable within the product line, and applications are portable because the application programming interfaces are the same as those for standard systems. With this approach, we get open systems without losing the advantages of the proprietary features.

Maybe as an HP 3000 user I've been spoiled. After all, the applications I have can be moved across an entire line of hardware, from the smallest HP to the newest HP 3000/980 Series 200—all without recompiling. I can also network them together to create client-server applications. Can your standards-based systems do that?

IS THERE "A BETTER WAY"?

Gordon: Even if the old proprietary hummer still works, it might not be worth the cost of keeping it on life-support.

Ollie: You always have to weigh old system hardware/software maintenance vs. new system hardware/software maintenance costs.

Gordon: Simple micro-economics dictates that those supposed open proprietary solutions are going to cost you more. If the prices weren't higher (and the margins fatter), vendors wouldn't be wasting so much time avoiding real standards, would they?

GORDON MCLACHLAN

"Why do new development on proprietary platforms? You can't turn a dinosaur into a mammal by gluing hair on it."

For all the talk about maintaining the "advantages" of proprietary systems, it's all just a stalling tactic. Economics will eventually drive us to use standard systems and make vendors provide them.

Ollie: I just worry that we are pushing proprietary systems out the door a little too soon. You seem to think that whatever is proprietary should be exorcised from the computer system. I don't think it's quite so terrible.

Proprietary systems are a vendor's way of saying "we have a better idea." What's wrong with that? Are current standards based on good ideas and good software or are they dictated by large corporations with plenty of money and political clout?

What happens to the little company with a better idea? They don't stand a chance.

Gordon: Money talks, bubba. That's why we use economic blackmail on our vendors to make them adhere to standards. Look how friendly IBM has gotten since their market-share has started to drop.

I agree that standards aren't a panacea. They show up late, and are usually watered down when they arrive. The point is that vendors can't be trusted to come up with open systems and interoperability on their own.

The problem is that what's good for users is definitely not good for the traditional vendors. They have eroding market-share to protect, and none of them wants to be cast in the role of pushing clone boxes, despite the fact that that's where they're headed and that's what we seem to be buying.

If they don't goose up the margins on "value-added" software (read proprietary) the fat cats will be scrounging in the alley like everybody else. That makes them want to develop

TIM "OLLIE" CAHOON

How do you develop applications in this new environment? We know COBOL, not this strange C or C++ stuff.

standardized proprietary systems, rather than to go with real standards.

The role of standards is to force the vendors into providing open systems at the risk of losing business if they don't. The trouble is that the proprietary systems are too far behind the curve. If you need to do something now, proprietary systems don't give you many options.

Ollie: No matter how the standards are set, how do you develop applications in this new environment? We know COBOL, not this strange C or C++ bull manure! Are the 4GLs, CASE and other tools as powerful and easy to use as what we have on our proprietary minis and mainframes?

Gordon: I have some sympathy for you there. COBOL is supposed to be self-documenting. I think C is self-obfuscating. The news media had a better idea of what was going on in Desert Storm than most of us have about C.

I hope that the emerging SQL standards and language-independent APIs will limit the amount of hassle involved in moving applications into the 21st century, but if COBOL and your beloved 4GLs won't make the cut, you'll have to change. I haven't heard much about object-oriented COBOL yet. If it won't port, it's mort (that's French for "dead," big fella).

WHAT ABOUT MY MEAL TICKET?

Ollie: What about my MIS staff and our jobs? How do we learn about this new environment being shoved at us by management? How do I train my people and keep them? Is this a worthy challenge or something to run from?

Some think that management is using this issue to get the old farts out of the way and replace them with workaholic kids who'll work cheap. For years we've been reducing the programming effort by using 4GLs and developing expertise in COBOL. Why go the other way?

Gordon: Hey, when all you've got is a hammer, everything looks like a nail. Networked systems need new tools. If you aren't going to change with the times, you can expect to be left behind. I don't know if its possible to teach old COBOL programmers new tricks, though. COBOL's been around for over 150 dog-years.

Ollie: It'll be around for a few more dog-years with all the applications we have. It will take years to convert or rewrite our systems. Standards are not going to solve that problem.

Gordon: Old code isn't a standards problem. When terminals came on the scene, we just modified batch programs to accept flat files as input instead of card decks, and did online data entry. That's why we have all those 20-year-old programs hanging around. They won't (and shouldn't) live to be 30.

True networked applications are going to require massive rewrites because the nature of the beast is so different than what we're used to. If those old applications are going to be hitting the scrap heap anyway, why not develop new systems with the right facilities?

MAINFRAMES AND URBAN RENEWAL

Ollie: Problems with downsizing have a lot in common with the growth of a large metropolitan area: You have the old downtown (mainframes), decaying but still politically powerful; the suburbs of the late 1960s are like minicomputers; smaller, easier to manage, and varied; the newer growth areas are like UNIX and PC workstations.

Like the new suburbs, workstations are attractive, but they lack the infrastructure of the older areas. Roads can't handle the traffic (networks); utilities (usable databases and languages) have to be provided. Police and fire protection (access control and security) are needed; libraries and post offices (disk drives with high reliability and communications software) all have to be built up.

Gordon: Don't forget the schools. The biggest problem with downsizing is learning what to do with networked systems. Client-server applications and distributed databases require a paradigm shift, and education is critically important.

Ollie: You've finally got something right! Training is the one thing that will make or break your effort. Too bad we tend to minimize it because of cost. What people forget is that the cost of providing it is outweighed by the long term cost of not having it. Penny wise and pound foolish as my grandma would say.

That is one reason why I like the RPC and API software route to downsizing. Your people already know the hardware

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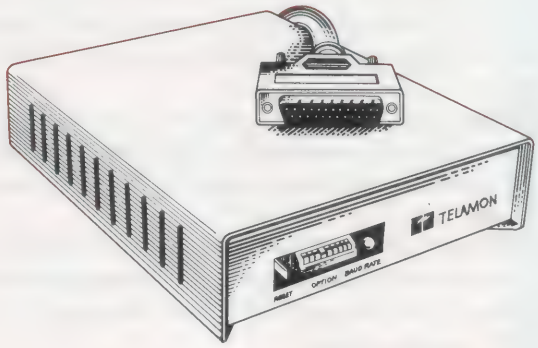

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and software. They only need to learn how to use the network.
Gordon: Gee, thanks for the seal of approval. Actually, the infrastructure isn't that bad. There's no shortage of software and tools for standard platforms. The quality is high, and they're usually cheaper.

It's really the FUD Factor (fear, uncertainty and doubt) that's keeping mission-critical applications off of workstation nets, and firmly planted on traditional (proprietary) mini and mainframe platforms, not a lack of tools.

That's the opposite of the problems of urban growth, where FUD was the driving force behind the flight to the suburbs.

CALMING THE NETWORK JITTERS

Ollie: I differ with you about the software. True, there are many fine software packages out there. But much of it is for single user use only. None those companies have any solutions for true large volume multiuser applications.
Gordon: When corporate America opens its wallet, the developers take notice. All the good new tools for networked systems will hit the open platforms first. If proprietary systems enjoy any advantage now, it's destined to be short-lived.
Ollie: It still begs the question: How do you handle security and data integrity with all those servers? Network reliability is still shaky. How about backup and recovery? Multiuser database locking strategies are topics new to the PC software companies!
Gordon: Just because you *can* spread everything all over the network doesn't mean you have to spread it around. System management always needs a dose of common sense and self-control.

Tools like those in the OSF's Distributed Management Environment will address multivendor networked systems management problems quite well. In the meantime, the software is good enough to fake it.

As a matter of fact, HP is leading the charge on open systems management and has submitted OpenView for consideration as the OSF DME platform. IBM also has licensed parts of OpenView and is apparently going to include them in its own NetView network management software.
Ollie: OpenView seems to be pretty slick. I haven't used it myself, I must admit, but anything to make network monitoring and control easier is a definite plus.

The one feature I like most is the automatic mapping of the network. I have been playing with some routers lately, and the ability to automatically display network entities is a big help. My router was able to identify all the Novell networks in our headquarters complex, along with all the servers and the services they provided. The Novell LAN staff was impressed.
Gordon: Novell too? Satan, get thee behind me!

No wonder you're confused. Your company has IBM MVS mainframes on SNA, HP 3000 "Classics" and Novell networks. That's a real recipe for open systems. The least you could do is run TCP/IP.

QUICK FIX OR PARADIGM SHIFT?

Ollie: That brings up the new HP 3000/9000 Data Communications and Terminal Controllers (DTC). We now *can* run TCP/IP, better than ever. HP is putting the ARPA TELNET and FTP services into the DTC and taking it off of the CPU. TCP/IP users can now log onto the HP 3000 and run block-mode applications. The new DTCs also will allow HP terminal users to TELNET to a TCP/IP based host.

Anyone can get to my proprietary HP 3000, and any of my users can get to your open systems. Once again, we have the best of both worlds.
Gordon: Big deal. An overgrown terminal server. The HP 3000 users will still need to use HP block-mode terminals or have HP emulation software on workstations. That's not open.
Ollie: The FTP software also will allow file transfers between HP 3000s and remote TCP/IP systems.
Gordon: The OSF's Distributed Computing Environment is on the verge of shipping and we're still talking about file transfers and terminal emulations? What about client-server applications?
Ollie: That is a problem, at least until the "open proprietary" MPE XL comes out.

For the most part, though, today's systems still rely on terminal access and file transfers. That's the best and easiest way to start designing applications across multiple hosts.
Gordon: It's also a lowest common denominator kludge that typifies our clumsy attempts to patch together proprietary systems. Client-server systems won't spontaneously emerge from file-transfers and terminal emulations.

The point I'm trying to make is that we have to force a paradigm shift. It's time to start thinking big, and even though trashing that old stuff may be painful, we need a fresh start.
Ollie: Before you paradigm shift into another dimension, here's one last question: Why do those UNIX guys always type everything in lower case? Talk about making life miserable!
Gordon: That's easy. They only type with one hand; You need the other one to find things in the manuals and to unwrap your Twinkies. It also makes the keyboard last longer.—*Tim "Ollie" Cahoon provides wide area network and HP technical support for the manufacturing operations of a Fortune 500 company. Gordon McLachlan is a systems and network planning consultant currently working for a Fortune 500 company that DOES use open systems.*

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The Client-Server Invasion

BY SAM DICKEY

HP Workstations In Client-Server Networks Have Set Out To Conquer The Commercial Marketplace

HP changed everything for workstation customers. Awesome price/performance with the 700 series, low-end price points with the 425e, industry-leading X Windows performance across product lines—these introductions and enhancements give HP an indisputable technological advantage over its competition. By most estimates, workstations from Sun, DEC and IBM are unlikely to challenge the performance of HP products for some time. If you recently tore up your purchasing plans, don't worry—you're not alone.

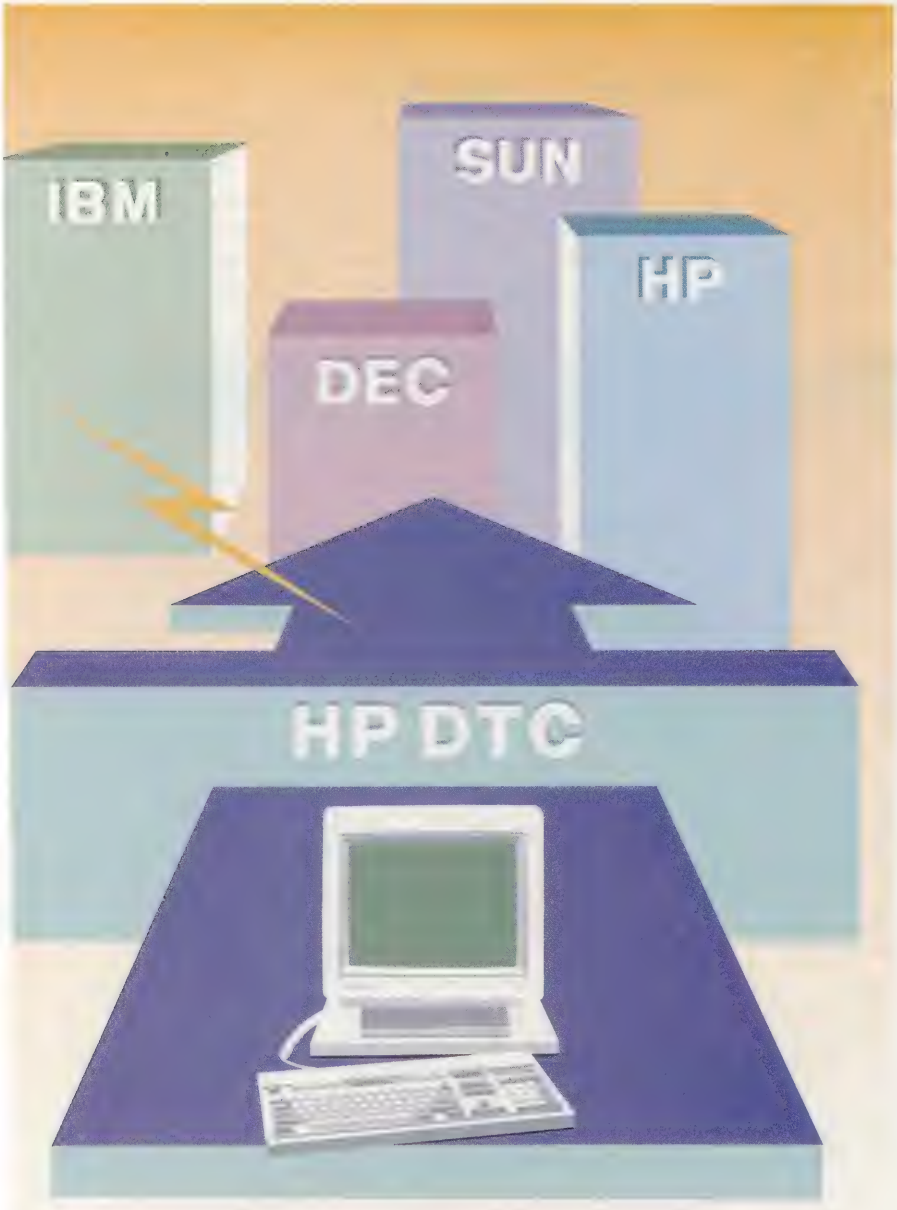
Will HP's outpouring of technical superiority be enough to regain dominance in the workstation market? Veteran workstation users presumably won't need much persuading to appreciate the price-performance advantages of the high-end PA-RISC 700s, but commercial users have traditionally relied on low-cost terminals and PCs. Why would they switch to workstations? What would be the draw? This is where the invasion of the client-server workgroup begins.

The natural entry point for workstations into commercial computing will be through the adoption of the client-server computing model by business users. Although it makes good business sense, client-server computing poses some hard questions for conservative commercial users. It could mean making the decision to reduce dependence on expensive mainframe computers and familiar proprietary software and commit to the dreaded UNIX operating system.

The client-server concept is based on the idea of a workgroup, or group of users who need to share information and computer resources. Among users within the group, there's relatively equal demand for access to data, software applications and processing power. Also, members of a workgroup can benefit from the ability to share large files and databases, as well as complex applications.

Ideally, the client-server network provides workgroups with a context for rapid information access over high-speed network links. Typically, network servers store information and applications and distribute them to the client computers when requested. Servers can

HP Consummates Merger With SUN, DEC & IBM.



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be any size, from desktop or deskside workstations or PCs to minis or mainframes, depending on the size of the database and the complexity of the applications.

The client workstations contain the processing power to support the computing environment, user interface and applications, and to handle the computing tasks at the client user's desk. Although servers and clients normally play distinct roles, as long as a single workstation can perform multiple tasks, it can be either a client or a server. Sharing can be between client and client as well as server and client.

GIANT KILLERS

IN CLIENT-SERVER COMPUTING, the center of computing activity is the individual's workstation rather than a centralized computer. This contrasts with the traditional mainframe and terminal-based computing where an end user at a dumb terminal depends upon a central mainframe or mini host for processing power as well as applications and databases.

As Peter Vescuso, commercial marketing manager in HP's Workstation Systems Division in Chelmsford, MA, says, "Client-server workstations distribute the central processing power of a mainframe or mini." According to Vescuso, this means increased computing power and reduced response times for individual users. "The problem with dumb terminals connected to a central computer always has been that when too many users get on the system, it's too slow to get anything done." The solution to this problem, he says, is simple: Distribute CPU power to every desktop.

To divide up the power of a mainframe across many desktops requires either extremely powerful desktop machines or powerful decentralized servers, like the HP 9000 Model 750, using less powerful workstations, like the HP 9000/400 Series, as front ends. It also requires a common, standard operating system, necessary for easy communications between client workstations and access to servers of varying sizes and kinds. Today, that operating system is UNIX (see sidebar below).

EVOLUTION NOT REVOLUTION

JUDGING BY THE SALES HP has made so far, the applications for which workstations in client-server networks find the most receptive buyers are those in which multitasking and processing speed are most essential. Examples include securities trading and customer service applications. Whatever the industry, customers implement client-server applications because they

[Desktop UNIX: Goodbye To The Old Ways]

With UNIX as a standard operating system and a GUI that makes UNIX simple enough for wary business users, the client-server model has become a viable alternative to traditional business computing models. According to HP's Mike Gallup, manager of the Americas Marketing Center for the Workstation Systems Division, it's an alternative to the old mainframe-terminal connections in which there was a server but no clients, or to a PC LAN, in which there are clients but no real servers. Gallup adds, however, that it requires a lot of computer power to run a user environment as sophisticated as this. "The more unskilled the user, the smarter the system has to be," Gallup says.

Because smarter and cheaper is better and standards are becoming prevalent, the workstation market is now driven by the performance and price of product offerings. And it's in the price/performance competition that HP has made its big splash. (For the time being at least, HP with its Series 700 is the price/performance leader.) As workstation power and capability increase and the price of workstations falls, the need for centralized mainframes and minis decreases.

Can commercial customers be persuaded from their established computing practices and from their investments in mainframes? Gallup believes they can. He points to purchasing contracts for HP workstations totalling over $125 million. HP signed all of these agreements during the first six months of this year. "These sales are to companies that have been using applications in the traditional mainframe or mini environment," he says. "They're ready to jump to the next generation of distributed computing. They're downsizing from mainframes and minis because of the capabilities and functional user environment workstations put in front of novice users," he adds.

Duncan Campbell, marketing manager in HP's Networks Division (Fort Collins CO), agrees. "We're seeing a fundamental shift occurring in the marketplace," he says, referring to "the downsizing of specific applications from a mainframe to UNIX servers." Campbell points out that the functionality available to workstation users, as well as falling workstation prices save those implementing client-server workstations even more money. "Mainframe-terminal connectivity is very expensive when you include the cost of the mainframe, the hardware support and the MIS staff that goes with it," he notes.

But that doesn't mean businesses are going to throw their mainframes away. According to Campbell, the mainframe, containing the databases, which are the corporate family jewels, simply becomes another server on the client-server network. Nor, for corporate PC users, does it mean abandoning DOS. UNIX workstations with DOS emulation can run DOS applications. DOS doesn't become obsolete. UNIX can coexist with DOS as well as mainframes.

Just what do client-server networks mean to the old ways of doing data processing? To a certain extent, the answer to that question remains to be found out. But one thing is certain: They have changed the shape of the computing landscape. Mainframes, minicomputers, workstations and PCs can now be thought of as components of a larger network architecture. A corporation's computing resources depend more and more on a variety of different types of machines, chief among which are workstations running UNIX. Client-server computing has done more to advance the cause of workstations and UNIX than it has for other available computing solutions.

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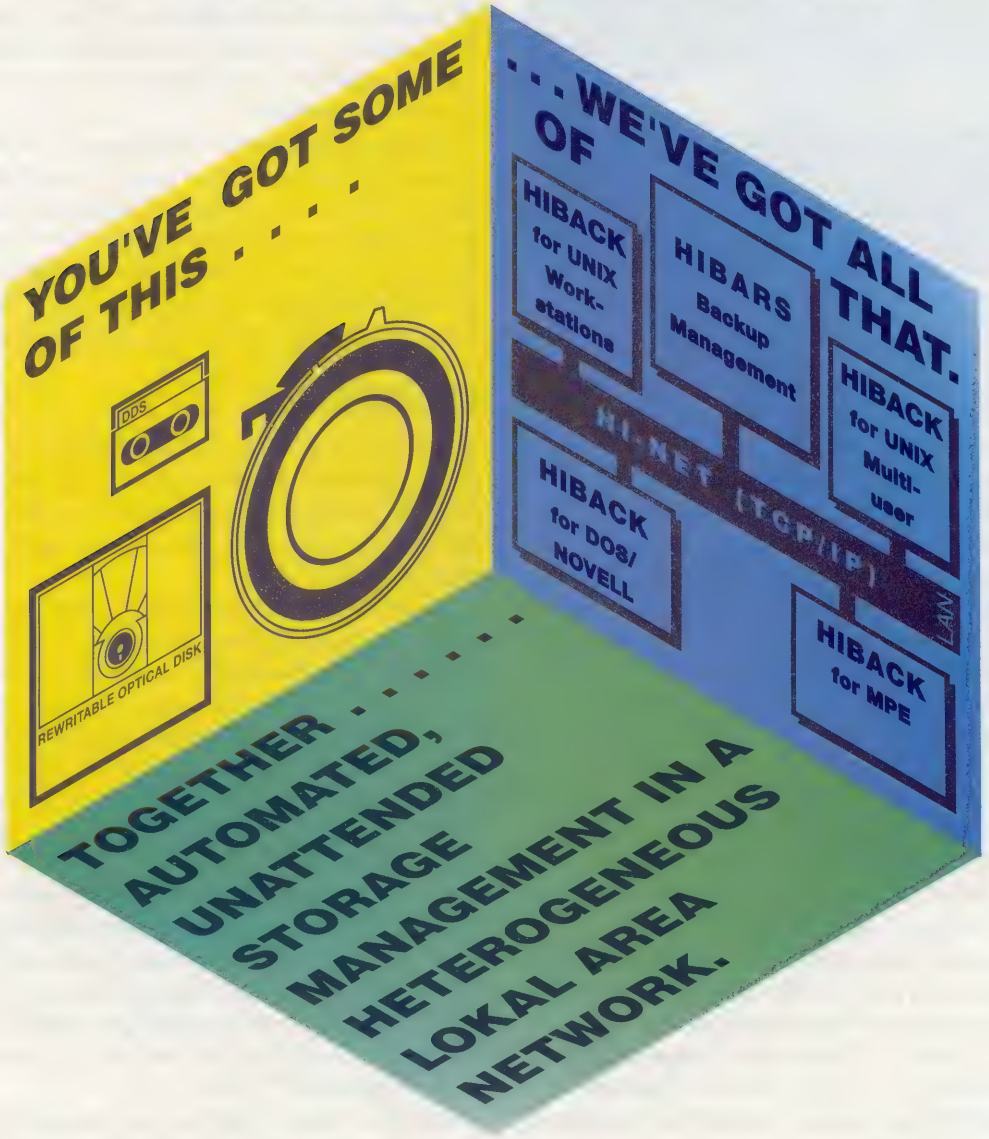

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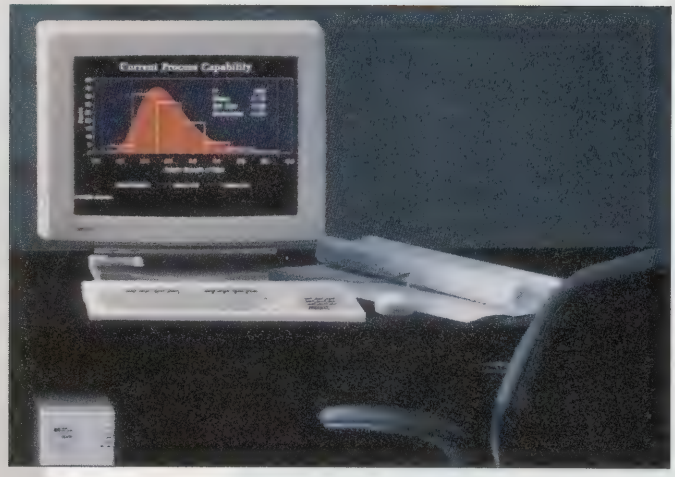

HP workstations in client-server workgroups provide an all purpose business solution.

provide a cost-effective solution for specific business needs. Rarely does a customer want or need to overhaul or replace existing computer resources.

Securities traders or financial counsellors must monitor the trading activity of several financial products at once. In a multitasking environment, a trader can watch stock quotes, read news service reports and call up financial analyses in separate windows on a single display. In customer service applications, customer service representatives can access online information from multiple databases containing customer records or product information more rapidly than from a terminal linked to a mainframe.

GTE Telephone Operations (Telops) (Dallas, TX), provides a perfect example of a client-server customer service application. GTE Telops recently ordered $40 million worth of HP 425e workstations and 433s servers. Running HP-UX, the 425e workstations also make use of the OSF Motif-based HP Visual User Environment (HP VUE) GUI and operating environment.

Blaine Maring, assistant vice president of architecture for GTE Telops, explains that, until now, for all commercial applications GTE Telops' 3,500 end users ran applications developed on mainframes in CICS COBOL. "Client-server computing enables us to take advantage of inexpensive mips on a workstation," Maring says, "about $200 per mips, as opposed to thousands of dollars per mips on a mainframe."

He notes that this savings has translated into increased technology resources for the company. "The cost difference," he says, "means that we can solve a new set of problems with client-servers that we couldn't solve with a mainframe and terminals." For example, Maring claims, "We wanted to move toward a client-server type of architecture, but also we wanted to continue to interface with our old mainframe applications." The added workstation processing power allows GTE Telops to surround an old application with a new graphical interface.

According to Maring, the mainframe will continue to play an essential role in the computer systems at GTE Telops. "It's a misconception that client-server computing is going to replace mainframes. That's the wrong model," he says. "For some applications, CICS COBOL will never go away—for example, batch applications like payroll or billing. Client-server doesn't do anything for those applications." Some problems belong on the mainframe, and some on workstations, Maring says. With both configurations, his operation has the flexibility to solve both sets of problems.

Has the adjustment to UNIX been a problem? "Absolutely," Maring says frankly, "It's a major cultural change, and we're still working on it one day at a time, one crisis at a time. We have people on a very steep learning curve. When some people have spent 20 years working with CICS COBOL and suddenly find we're no longer working with CICS COBOL, their careers feel threatened. It's can be a traumatic experience."

AN OPEN FUTURE

THERE IS, HOWEVER, SOME MEASURE of compensation for the programmers' anxiety. Open systems—the promise of standards and interoperability—makes it worthwhile. In Maring's opinion, the industry's progress toward open systems is, if anything, too slow.

To the extent that open systems represent the future direction of commercial computing, open systems also ensure future sales of workstations to commercial users. HP's Vescuso believes that recent large sales of UNIX-based client-server workstations in the commercial marketplace is evidence of a general commitment to open systems. "The trend is for real," he says. "The benefits of being able to pick and choose hardware, of not being locked into one vendor, are very important to a lot of customers."

It's to HP's advantage, according to Vescuso, that it has made a greater commitment to open systems than its competitors. He believes this isn't lost on customers and will help future sales of HP workstations. "In large deals where a customer may be betting the business on a hardware vendor, we have the advantage over Sun, DEC and IBM of being perceived as an open systems company," Vescuso says.

Duncan Campbell agrees that, although the pricing of HP's new workstations will be a major factor in future sales to commercial customers, HP's overall strategy also is crucial. "HP has been very clear on its open systems strategy," he says. "Our vision of the desktop is heterogeneous: It will be DOS-based, UNIX-based and Macintosh-based. Our objective is to provide plug-and-play transparency." For that, only workstations in client-server networks will do.

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CIRCLE 123 ON READER CARD

PC TIPS

Miles B. Kehoe

Search And FIND

In the last column, we recorded a NewWave Agent Task Language (ATL) script that adds a particular name and electronic mail address to a Windows Cardfile data file. Although recording this task is straightforward, NewWave doesn't allow you to include prompts, messages, and conditional branches in a recorded task.

Tasks are more useful when they're generalized and when you can make them interactive and easy to use. By editing a recorded script, you can add some statements and functions that make it a general purpose, interactive script. *Figure 1* is a sample script with added statements and functions.

To make the example script interactive, a few changes are needed. For example, NewWave uses square brackets to indicate special ATL macro commands. If a user enters one of these brackets as part of a field in the DO_KEYSTROKES statement, NewWave interprets the data that followed the bracket as one of these internal macro commands.

Chances are good that, even if the user entered a valid macro name, you wouldn't want the script to actually perform the macro. Hence, the script really should be altered to check the user input and confirm that no special characters are present.

To perform this check, we'll use one of the NewWave ATL string functions. Although there are many ways to accomplish this task, I'll use the FIND statement. The general format of the ATL FIND statement is:

```
FIND(s1, s2, col)
```

This statement searches starting at byte position **col** in the string specified by **s2** for the substring **s1**.

Figure 2 shows a procedure to check a string for bracket characters. Because NewWave doesn't support any formal parameter passing, we'll use a method that should look familiar to anyone who has programmed in BASIC. First, we'll pass the string to be tested in the variable Test_Buf#, and on return test the variable Buf_OK#. If either square bracket is included in the input string, Buf_OK# will be set to one; otherwise it returns as zero.

FIGURE 1

```
TASK
FOCUS OFFICE "NewWave Office"
' Initialize variables
Save_and_Quit# = "~fs~fx"
' Open the Cardfile application
SELECT HPEN_cardfiletool "Cardfile"
OPEN
FOCUS HPEN_cardfiletool "Cardfile"
LABEL Start_Entry
        INPUT Key_Name# LENGTH 32 "Enter the key index:"
        INPUT Full_Name# LENGTH 32 "Enter the full name:"
        INPUT Cis_Acct# LENGTH 12 "Enter E-Mail Address:"
        DO_KEYSTROKES  "{F7}" + &
                Key_Name#  + "{ENTER}" + &
                Full_Name# + "{ENTER}" + &
                Cis_Acct#  + "{ENTER}"
MESSAGE answer# "Add more names?" QUESTION YESNO
IF answer# = 1
        GOTO Start_Entry
' If user says no more names, continue
LABEL All_Done
DO_KEYSTROKES  Save_and_Quit#
END
ENDTASK
```

A general purpose, interactive script is used to add names to the same Cardfile data file.

FIGURE 2

```
PROCEDURE Test_String
'  Test string Test_Buf# for invalid characters
'  Set Buf_OK# to Zero if Test_Buf# contains no invalid
'  characters; Set to One if Test_Buf# contains [ or ]
Buf_OK# = 0
LBrack# = FIND("[",Test_Buf#,0)
RBrack# = FIND("]",Test_Buf#,0)
IF ((LBrack# >= 0) OR (RBrack# >= 0))
        Buf_OK# = 1
ENDIF
RETURN
ENDPROC
```

The general procedure to check a string for bracket characters.

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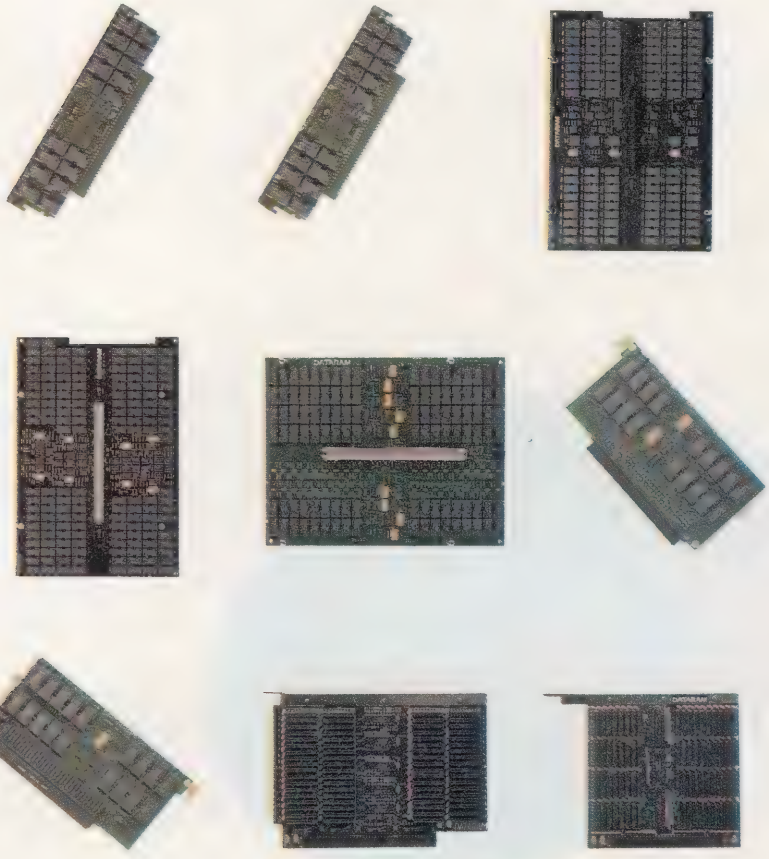

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The script segment in *Figure 3* illustrates how you can prompt a user for input, then test the results for unwanted or invalid characters. If the entry is null, the script jumps to the label All_Done. However, if the user enters any data, the script calls the Test_String routine to test for invalid characters.

If Test_String finds invalid characters, it returns a value of 1 in the global variable Buf_OK#; if the string contains no invalid characters, it returns a zero.

Adding similar routines for accepting values for the additional fields, ensures your ATL script will work properly.

Mistakes Happen

Using the FIND function and the procedures in *Figure 3*, we can try to protect our script from unexpected user input. However, a more general solution is to include a generalized error handling routine in our script.

NewWave's ATL includes an ON ERROR construct that allows you to branch control to a procedure you provide when an error occurs. You can choose to respond to the error and let the user correct the problem; exit the task; or perform any other steps.

I've also included a general error handling procedure at the end of *Figure 3*. The ON ERROR and SET ERROR ON at the beginning of the script define what action to take in case of an error.

The actual error numbers you'll encounter are provided in the NewWave Support Guide, a part of the optional NewWave Technical Reference Manual. This isn't always an easy source to locate, and it is a bit expensive. You may want to identify the errors from which you can recover and let all other errors terminate your script.

With the statements and functions we've looked at over the last few columns, you should be able to customize your ATL scripts to work better for you and for the users you support.—*Miles B. Kehoe is an online support manager for Verity Inc., Mountain View, CA.*

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FIGURE 3

```
TASK
FOCUS OFFICE "NewWave Office"
'Define what to do when an error occurs
ON ERROR DO ERROR_Handler
'And now turn on error trapping
SET ERROR ON
' Initialize variables
Save_and_Quit# = "~fs~fx"
' Open the Cardfile application
SELECT HPEN_cardfiletool "Cardfile"
OPEN
FOCUS HPEN_cardfiletool "Cardfile"
LABEL Start_Entry
INPUT Key_Name# LENGTH 32 "Enter the key index:"
IF LEN(Key_Name#) > 0
'       Test Key_Name# for invalid characters
        Test_Buf# = Key_Name#
        Buf_OK# = 0
'
        DO Test_String
'
        IF Buf_OK# > 0
                DO Bad_Entry
                GOTO Start_Entry
        ENDIF
ELSE
        GOTO All_Done
ENDIF
'
'
'
LABEL All_Done
DO_KEYSTROKES  Save_and_Quit#
END
ENDTASK


PROCEDURE Test_String
'       Test string Test_Buf# for invalid characters
'       Set Buf_OK# to Zero if Test_Buf# contains no invalid
'       characters; Set to One if Test_Buf# contains [ or ]
Buf_OK# = 0
LBrack# = FIND("[",Test_Buf#,0)
RBrack# = FIND("]",Test_Buf#,0)
IF ((LBrack# >= 0) OR (RBrack# >= 0))
        Buf_OK# = 1
ENDIF
RETURN
ENDPROC


PROCEDURE Bad_Entry
'       Provide Message about bad characters in entry
'
        MESSAGE Answer# "Please re-enter without any special
characters" &
                HAND OK
RETURN
ENDPROC
```

Procedures to protect your script from unexpected user input.

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APOLLO

Fred Mallett

From Aegis To UNIX

With enough information, system administrators should be able to make good decisions in converting Aegis users to UNIX, or bringing network workstations up to Domain SR10, which now provides you the choice of either Aegis or UNIX.

In case you don't know, Aegis is UNIX rewritten in English. Too bad it didn't catch on. For Aegis users to convert to and start using UNIX, which for most users would be like sitting down at their system to find a katakana keyboard installed, can be a daunting task. For one thing, there are far too many decisions to make. The first one is usually which environment should I use? There are two UNIX environments available with SR10. You get SVID-compliant System V, Release 3 (sysv, or sys5.3), AT&T's version of UNIX, as well as Berkeley Software Distribution's version called 4.3BSD (bsd, or bsd4.3).

The choice here often is made for you by the company that wrote your applications; often it will require one or the other. If you aren't tied to one environment by your application, it's a difficult decision. Because SR10 doesn't use either of the UNIX kernels, it's like choosing between Chevy and Ford — more a choice of preference than functionality.

Cron Vs. Cron

For chronology programs that execute programs at specified times, sysv's **cron** wins over bsd's **cron**. This is primarily because of the different ways the two **cron**s accept input. The sysv version takes a job list from the **crontab** command that reads in a file in a specified format. This means any users you allow (**cron.allow** file) can submit their own jobs. From the system administer's standpoint, this means they'll leave you alone.

In bsd **cron**, there's only one **crontab** file and this must be edited directly, with the username for execution typed into the file. Any user you allow to edit this file can misspell his name as "root" and the job executes as root. So that this isn't a security hole, you must protect this file. In bsd, users really can't use **cron** safely without the administrator creating some program to handle submissions.

Users can use **at** in both environments for one time job execution. On an SR10 system you can have the best of both worlds by setting the node environment to sysv with the **etc/environ** file. This allows the **/etc/rc** file to start the **sysv** version of **cron**. Then use the **~/.environ** file to set the users environment to bsd if that's your choice.

Text Pages

For text file control in the shell, I prefer bsd's tools. The **head** and **tail** command allow me to just see the beginning or end of a file—great for looking for a specific file content. The **more** command is a great tool to view a file with page control — to view page by page. The **c** option allows line overwrite instead of scrolling. This is much easier to read while a new page is being written. The **-c** mode of operation also can be set as an environment variable to allow any invocation of **more** (such as **man**) to perform **-c** mode.

```
In a csh:  setenv MORE -c
In a sh:   MORE='-c' ; export MORE
```

The **more** command also allows editing while paging through a file by using the **v** command to enter **vi** at the current location. There are paging, search and command escapes available. I recommend the **man** page for **more** be visited, it's more powerful than most users realize.

The paging commands of bsd are not available in sysv. (most sysv systems have a command called **page** that's similar, but not Domain/OS). However, sysv does have a great feature that bsd doesn't: **pack unpack** and **pcat**. These commands can be used to compress and de-

compress text files. The **pack** outfile is given a name with a **.Z** suffix. The reason to use **pack** instead of **compress** is that the file can be left in the packed state. You can use **pcat** to print the unpacked text to standard out and then **pipe** the text to any command you want. The **unpack** command will recreate the unpacked file.

Let me give you two warnings about **pack**. First, it won't work on files with names over 12 characters. Also, if you **pack** files other than text type, be sure to check the file typing after unpacking. The **pack** command often changes the object type if it can't locate the magic number in **/etc/magic**. The equivalent in bsd is to use **compress** then **zcat** or **compress -c** to print a compressed file without changing the file.

File Commands

Compared with earlier versions of System V (sys5.2), there is no question that bsd was superior. Now that sys5.3 allows many of the command options of bsd, they have become more equal. For example, some of the dangerous commands such as **cp** and **rm** now allow an **-i** option to warn about overwriting of files (**cp**) or inquire about deleting (**rm**). The **-i** option is still unique to the bsd **mv** command though.

The **mkdir** command in sysv allows a **-p** option to create an entire tree structure at once. For instance, **mkdir -p / x/y/z/q** will create any of the directories that don't exist. This command is highly useful in shell scripting. The sysv command **rmdir** also has a **-p** option to remove any parent directories that become empty as a result of deleting the specified directory.

Dynamic Environments

Domain/OS is almost unique (Sequent Computer's DYNIX operating system is the only other I know of) in providing a dynamic choice of bsd or sysv user environments. The choice is great to have, because as you can see, there are reasons for wanting both environments. You can offer each user his choice of environment as long as you load both.

You also can do some customizing using the **ver** command. The **ver** command lets you change environments dynamically: **ver bsd4.3** or **ver sys5.3**. You also can execute one command from the other environment, such as:

```
ver bsd4.3 mv -i myfile //node/some_dir
```

Which, from the sysv environment, will use the bsd **mv** command to prompt you for what to do (overwrite?) if a file named "myfile" exists in **//node/some_dir**. Another example would be to use the full pathname to a file from the other environment. In the following example, I'm in sysv using the **cat** command to print a file to the screen, but I want it with paging that isn't available, so I pipe the output to the bsd command **more**.

```
cat my_text_file | /usr/ucb/more
```

Some of these methods could be setup as aliases. In the Korn shell:

```
alias more ="/usr/ucb/more "
```

(Note the trailing space in the quotes, this allows me to use other aliases in the same command line.)

In the C shell:

```
alias more /usr/ucb/more
```

Next Choice

Once you've chosen an environment to run under, the next choice will be which shell to use. A common error people make when new to UNIX is to confuse shells with environments. There are three UNIX shells supported in SR10. All three shells are supported in both sysv and bsd.

A shell is a program, and the pathname to these shells are:

Bourne shell:	/bin/sh
C shell:	/bin/csh
Korn shell:	/bin/ksh

Each environment has its own three shell programs as **/bin** is really a soft link to **/sys5.3/bin** or **/bsd4.3/bin** depending on the **systype** (environment) you have set.

There are some differences between the same shell in different environments. The sys5 Bourne shell supports functions whereas the bsd version doesn't. Mostly though, the shells are the same in both environments. The differences between shells are in their functionality.

Briefly, the Bourne shell is considered the common shell because it's found on all UNIX machines today. If you want to write a shell script and have it run on all machines, it's probably best to write it in the Bourne shell programming syntax. Most scripts found in application distributions are written for the Bourne shell. The drawback is the Bourne shell's interactive features are weak.

The C shell has good interactive features as well as strong shell programming functionality. Interactive features include aliases, history mechanism with editing features and job controls. The problem with the C shell is that its syntax is different from the Bourne shells. That's OK if you never have to deal with Bourne scripts. If you do, it's confusing.

The Korn shell is hailed as the best of both worlds. It has strong interactive features — aliases, functions, history and job controls. It also has a programming syntax that's similar to, and in fact backward compatible with, that of the Bourne shell. Most Bourne scripts run in a Korn shell with few changes. It allows you to use one shell all the time. The Korn shell is widely accepted, but not yet widely available. For example, it isn't in the current release of SunOS. It will, however, be in OSF's releases. The machine running OSF that I played with had the C shell and the Korn shell on it.

For more information on the features of the different shells, I recommend reading the **man** pages (UNIX help files) for each one. Have fun—there must be at least 100 pages to get through.—*Fred Mallett is president of FAME Computer Education in Bloomington, MN.*

Would you like to continue to see articles on this topic?
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yes 350 no 349

NEW PRODUCTS

MJM Software Offers OLIT For HP 9000s

MJM Software announced the availability of OPEN LOOK GUI Release 4.0 for the HP 9000 workstations. OLIT is based on Release X11R4 of the MIT Intrinsics and is supported under HP-UX 8.0.

Additionally, MJM Software announced the availability of the OPEN LOOK and OPEN LOOK/NLS (Native Language Support) GUI Relase 2.0 under X11R4/HP-UX 8.0, which will allow customers with 2.0 based applications to take advantage of the HP 700 series.

Contact MJM Software, 17 Clyde Rd., Ste. 202, Somerset, NJ 08873; (908) 873-9975.

Circle 400 on reader card

Cognos Brings QuizPLUS To HP MPE V Market

Cognos announced a new version of its QuizPLUS end-user report writer for MPE V.

QuizPLUS lets end users create custom reports quickly and easily without custom programming. This allows MIS staff to concentrate on more complex programming tasks.

QuizPLUS enables end users to build simple-to-medium complexity reports using data available though Cognos' PowerHouse application development environment, including TurboImage, KSAM, and other MPE data files.

QuizPLUS for MPE V is priced from $1,300 to $20,000 depending on size of computer.

Contact Cognos Inc., 67 S. Bedford St., Burlington, MA 01830-5164; (617) 229-6600.

Circle 399 on reader card

TGRAF-X Software Brings More Applications To HP 700s

Grafpoint announced that TGRAF-X, Tektronix 4107 and Tektronix 4125 terminal emulation software capability, is now available for HP's PA-RISC-based 700 series.

With any HP Model 700 machine and TGRAF-X, users can access host-based graphics software and run those applications from inside an X Window on an HP workstation or X display connected to an HP workstation. Adding TGRAF-X to a Series 700 increases the number of software applications it supports. Users have greater access to applications without adding the cost associated with buying and supporting separate graphics terminal hardware.

Contact Grafpoint, 1485 Saratoga Ave., San Jose, CA 95129; (408) 446-1919.

Circle 388 on reader card

RGB Spectrum Introduces RGB/Videolink 1600U

RGB Spectrum introduced the RGB/Videolink 1600U scan converter, that transforms high-resolution computer graphics to television format in real time. This allows recording of computer graphics on any video tape recorder and connection to video projectors, teleconferencing systems and composite monitors.

The new model automatically syncs to all computer RGB signals with a horizontal scan rate from 20.0 to 90.0 kHz, including PCs, Mac IIs and workstations from HP Apollo, Sun, DEC, IBM, Silicon Graphics and others. Both interlaced and non-interlaced inputs are accepted.

Synchronization and set-up are completely automatic. The 1600U measures the horizontal and vertical frequencies of the input signal and sets up the parameters for the sharpest picture, correct aspect ratio and size of the output image.

Contact RGB Spectrum, 2550 9th St., Berkeley, CA 94710; (415) 848-0180.

Circle 380 on reader card

Optical Disk System Interfaces With REVEAL 3.0

O'PIN announced the introduction of a product model that interfaces REVEAL version 3.0 with an optical disk utilizing WORM (write once read many) technology.

Report users will now have the same access and report handling features no matter whether they are looking at yesterday's report or last year's.

Contact O'PIN Systems, International Plaza, Ste. 635, 7900 Int'l. Dr., Bloomington, MN 55425; (612) 854-3360.

.Circle 371 on reader card

The RGB/Videolink 1600U scan converter transforms high-resolution computer graphics to television format in real time.

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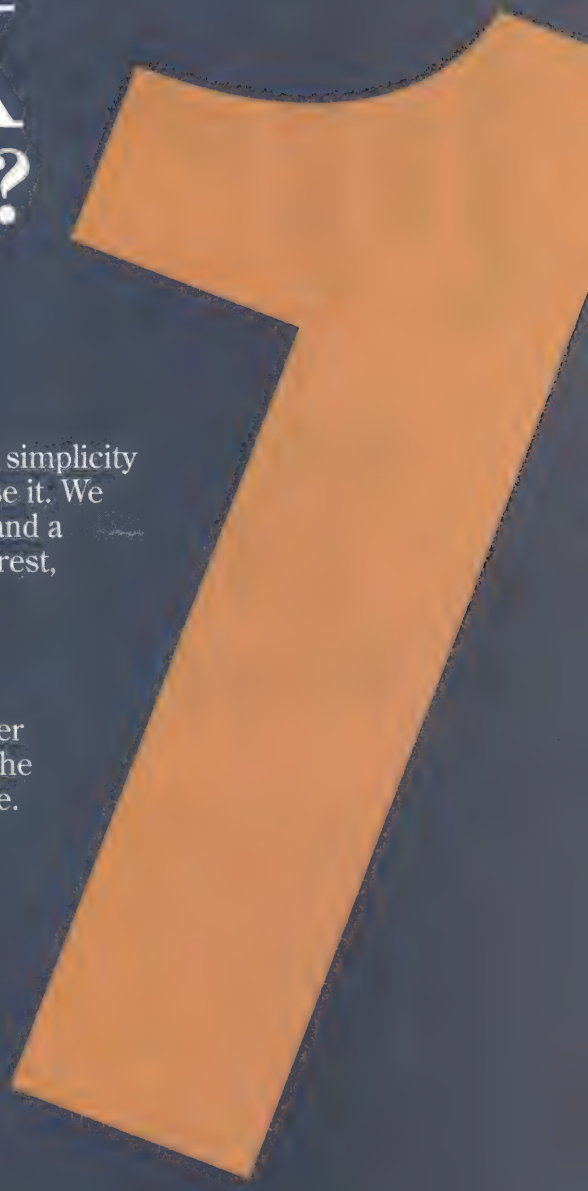

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Exabyte Adds EXAPAK And 8mm Data Cartridge Holder

Exabyte Corp. shipped two new products: the Exabyte 8mm Data Cartridge Holder, a stackable container designed to facilitate loading, unloading, indexing and storing of up to 10 8mm data cartridges; and the EXAPAK, a data cartridge holder loaded with nine EXATAPE 8mm data cartridges and one Exabyte 8mm Cleaning Cartridge. Both products are used in conjunction with Exabyte's line of 8mm cartridge tape subsystems.

Contact Exabyte Corp., 1685 38th St., Boulder, CO 80301; (303) 442-4333.

Circle 389 on reader card

Equinox Systems Announces 8-Port UNIX I/O Subsystem

Equinox Systems Inc. announced the MEGAPORT 8CS, an 8-port version of its 12- and 24-port MEGAPORT multiuser products.

Equinox works by using the firm's proprietary Integrated Communications Process (ICP): two RISC-type processors, one operating at 16 MHz and one at 12 MHz. This multiprocesssor architecture allows all ports to be served in parallel with no degradation in terminal response time.

The MEGAPORT 8CS simultaneously runs all eight users at 38,400 bps with no degradation while requiring less than one-half of one percent of the cpu per port. These users can be terminals, printers or modems.

Contact Equinox Systems Inc., 14260 S.W. 119th Ave., Miami, FL 33186; (800) 328-2729.

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Accugraph Announces CAD Products For HP

Accugraph Corp. completed a feasibility port to HP 9000 Series 700 workstations. Accugraph's advanced CAD and Information Management software, MountainTop, will be available to users of the Series 700.

Through Accugraph's Flexible Networking System (AFNS), PCs can access the Series 700. This networking, tied to the MountainTop software, also can be used for kiosk applications—accessing various levels of database information through the selection of graphic elements on the computer screen.

Contact Accugraph Corp., 50 Gervais Dr., Ste. 204, Don Mills, ON M3C 1Z3; (416) 441-2211.

Circle 395 on reader card

JYACC Releases JAM For Motif

JYACC announced the availability of JAM for the OSF Motif graphical user interface.

The new add-on, layered product, JAM/Presentation interface for Motif is the first of several new presentation interfaces to be introduced by JYACC.

JYACC's new product provides complete support for Motif widgets: All forms run as separate Motif windows; data entry fields use Motif text widgets; menus, radio buttons and check lists use standard OSF Motif widgets. Error messages are handled by a standard error dialogue box, and support is provided for proportional fonts.

Complete Motif-compliant mouse support is provided. JAM/Presentation interface for Motif is priced from $395 to $1,995.

Contact JYACC, 116 John St., New York, NY 10038; (212) 267-7722.

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CIRCLE 168 ON READER CARD

NEW PRODUCTS

HP And IntelliLink Connect HP 95LX With HP NewWave

HP and IntelliLink Inc. (Acton, MA) announced that IntelliLink, a connectivity software-integration system, will provide support for the recently introduced HP 95LX palmtop PC via HP NewWave.

Using HP NewWave's object-oriented desktop software, IntelliLink users will open an icon representing the handheld PC and choose the data they wish to transfer from the HP palmtop to the HP NewWave desktop. This selection automatically will create an HP NewWave object containing the data. To transfer data back to the HP 95LX, users simply drag and drop objects from the HP NewWave desktop onto the icon representing the HP palmtop.

IntelliLink for HP NewWave is priced at $99.95.

Contact IntelliLink, 7 Parker St., Acton, MA 01720; (508) 264-9943.

Circle 360 on reader card

Lucas Management Announces Upgrades To Artemis

Lucas Management Systems announced that Artemis 7000 Version 7.5 is available on several new platforms including HP 9000/800, IBM RS/6000, Sun 4 SPARCstations, and 386 PCs. Artemis is a project planning and control environment and uses a high-level development language designed for project management.

Artemis provides gateways to SQL databases including Oracle and Ingres, allowing the integration of project management data with other corporate data. And, Artemis V7.5 uses the X Windows graphical user interface.

Pricing starts at $17,900 in a UNIX environment, and the PC version costs $6,000.

Contact Lucas Management Systems Inc., 12701 Fair Lakes Cir., Ste. 350, Fairfax, VA 22033; (703) 222-1111.

Circle 391 on reader card

New Reporting Capabilities Added To BUSINESS/XL

Smith, Dennis & Gaylord Inc. (SD&G) released an enhanced version of the BUSINESS/XL Fixed Assets system.

This upgraded solution enables SD&G users to take full advantage of BUSINESS/XL features such as values assist, an online look-up function, and navigation express, a feature that allows you to move from module to module without going through menus.

Enhancements in the release include a fixed assets/general ledger reconciliation report, providing detailed information of asset cost and accumulated depreciation; a report that includes detailed or summarized information to report cost and depreciation balances by company and user-defined locations; and mid-quarter adjustment postings to depreciation.

Contact Smith, Dennis & Gaylord Inc., 3211 Scott Blvd., Santa Clara, CA 95054-3078; (408) 727-1870.

Circle 387 on reader card

HardCore Announces Power Windows/3000

Hardcore Software released a new version of its screen jumping program for the HP 3000.

Power Windows/3000 allows a user to access up to 20 programs simultaneously. The user can jump between screens from any prompt on a screen with a simple key combination (CTRL-L). Screens and function keys among other things, are automatically saved and redisplayed when the user returns to the program. The software works equally well with HP terminals and PCs. A program can have an unlimited number of file equations and commands associated with it.

The cost of the system is $2,000/cpu.

Contact HardCore Software, 85 Franklin St., New York, NY 10013; (212) 925-0735.

Circle 385 on reader card

Bradmark's DBGENERAL 6.1 Goes Native

Bradmark Technologies Inc. announced version 6.1 of DBGENERAL. This version introduced new technology in the form of a Native Mode Detail dataset reorganization and NM Master dataset capacity change. These modules have been rewritten to take advantage of the MPE XL architecture and make extensive use of mapped access to files in order to achieve performance gains.

The newest feature of DBGENERAL is the capacity trend analyzer (CTA). The CTA is invoked by the user to display the on-going trends in capacity and fullness levels for the specified datasets using graphs and tables.

Contact Bradmark Technologies Inc., 4265 San Felipe, Ste. 800, Houston, TX 77207; (800) ASK-BRAD.

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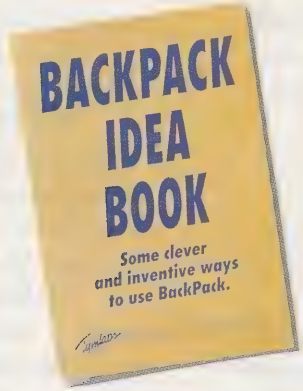

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You'll probably spend the next ten years with your financial software. Spend a minute reading why it should be Mitchell Humphrey & Co.

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MH&Co. is not the cheapest. Nor the biggest. *Simply, the best.* So if you are going to spend the next ten years with your financial software, which would you prefer: a bargain or the best?

Take another minute to find out more about our software. Call Ken Benvenuto at 1-800-237-0028. Or write us at 11720 Borman Drive, St. Louis, Missouri 63146.

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Galileo Scientific Releases E-Z Financial Program

Galileo Scientific released E-Z FIN(ance), a basic financial software for HP 9000 Series 200/300/500 and HP Vectra (with Viper Card). This also is available in a version for HP computers running RMB on HP-UX.

This software offers a menu of 13 financial programs that cover most cases where money is invested or borrowed and provides information about loans, mortgages, annuities, rate, yield, etc. These programs provide the conventional single value solution to a single set of input parameters.

Contact Galileo Scientific, 2731 Blairstone Rd., #175, Tallahassee, FL 32301; (904) 878-7450.

Circle 375 on reader card

HP3000/JOBSCOPE Operates In Native Mode On 900 Series

Jobscope Corp. released Version 9 of its HP 3000/JOBSCOPE for operation in native mode on 900 series systems running MPE XL.

Functionality of JOBSCOPE Version 9 includes two major improvements: a reduction in the amount of disk space required and the capability to quickly print any screen.

Contact Jobscope Corp. P.O. Box 6767, Greenville, SC 29606; (800) 443-5794.

Circle 377 on reader card

Maintenance Express Expands HP Functionality

Eagle Consulting & Development Corp. announced its Maintenance Express Automated Data Collection product for HP Maintenance Management System users.

Maintenance Express expands the functionality of HP Maintenance Management with integrated "plug-and-go" Automated Data Collection modules that provide online RF terminals, bar code label printing, online digital scales, online shop floor workstations, and industrial ink jet marking capabilities.

Maintenance operators now can use familiar Maintenance Management commands in a wireless manner anywhere within the plant site to perform online interactive paperless transactions and information inquiries. Simultaneously, these transactions can control the weighing of materials with online digital scales, print bar coded labels and industrial ink jet identify items. New commands such as an online equipment and part locator system have been added.

Contact Eagle Consulting & Development Corp. 170 Kinnelon Rd., Ste. 3, Kinnelon, NJ 07405; (201) 838-5006.

Circle 374 on reader card

LL'Spirit Automates PowerHouse Applications

Singapore Technologies launched LL'Spirit 6.0, an intelligent tool that automates your PowerHouse application development from prototyping to development and maintenance, providing online impact analysis and extensive documentation. It addresses three areas of software work: development, documentation and end-user reporting.

LL'Spirit Developer generates an entity-relationship map to verify design correctness. It also generates Quick and Quiz prototype PowerHouse programs or single program based on the file definition in the data dictionary and checks the quality of Quick programs.

LL'Spirit Re-Engineer also helps you to document your PowerHouse programs using wildcard or used file by last accessed date.

LL'Spirit Info Scout is a reporting tool with a easy-to-use interface. It also implements security features that protect the integrity and confidentiality of the data.

Contact Singapore Technologies, 260 East Grand Ave., Suite 18, South San Francisco, CA 94080; (415) 875-6633.

Circle 362 on reader card

SE Technologies Offers EDI Software For ASK MANMAN

SE Technologies released an Electronic Data Interchange (EDI) software package consisting of both EDI translation software and interface software for ASK MANMAN.

The EDI software package enables computer-to-computer transmission of business documents in a standard format through a Value Added Network (VAN) between MANMAN users and their vendors, carriers, distributors and customers.

The package works with the HP 3000, Digital's VAX systems and PC platforms. It conforms to most standards such as ANSI C.12, EDIFACT and TDCC.

Contact SE Technologies, 15 Bank St., Stamford, CT 06901; (203) 357-1772.

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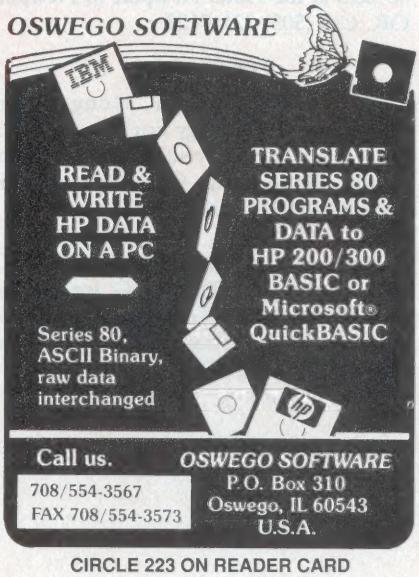

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[SEPTEMBER]

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[OCTOBER]

4-7: CENIT Asia' 91, Hong Kong's Information Technology Fair is being held at the Hong Kong Convention and Exhibition Center, Hong Kong. Call Hannover Fairs USA, (609) 987-1202.

13-15: NTRUG, GHRUG, STRUG, BRUG and CENTEXRUG are holding their 2nd annual All-Texas Conference at the Radisson Hotel, Austin, TX. Call Terry Floyd (512) 345-3963.

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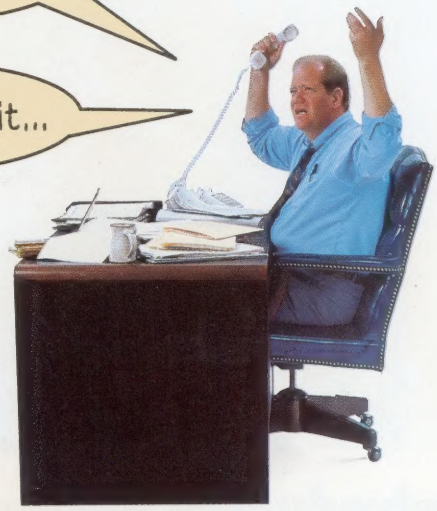

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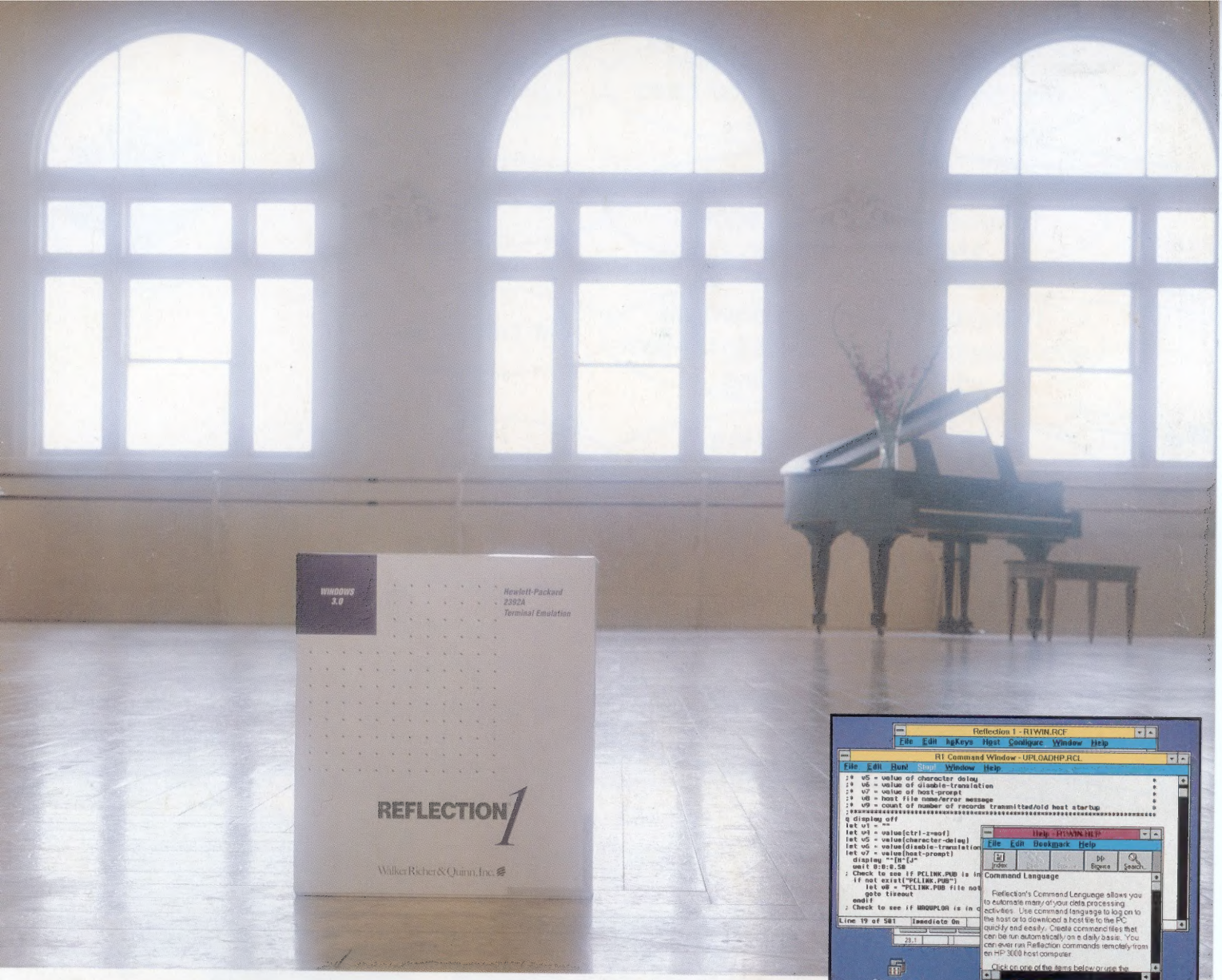

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